Towards Affinity Spaces in Schools: Supporting Video Game-Design Parnterships as Twenty-First Century Learning Tools

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Abstract

Towards affinity spaces in schools: Supporting video game-design partnerships as twenty-first century learning tools

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The Arcade Our Way (AoW) project was an intergenerational, all female, video game design based project involving fifteen grade seven students, five undergraduate students, the CEO of a small gaming company and the researcher who both participated and observed. This ethnographic pilot study was an investigation of the merits of the project as a twenty-first century learning tool, where twenty-first century learning is aligned with the views of John Dewey and Paulo Freire. The project is considered for its strength as a progressive learning space through the lens of contemporary informal online learning spaces knowns as affinity spaces (Gee, 2005), and "energizing moments" a tool developed through data analysis. Affinity spaces are non-hierarchical and constructivist in nature, and participants of all ages learn from one another based on shared interests. Specifically the fourteen features of *nurturing* affinity spaces (Gee & Hayes, 2012) were used as reflective tools through which to consider the strength of the project as a constructivist learning environment. Each feature was then evaluated through a five point rubric and ranked according to its relative strength. To further corroborate the merit of the project from a student centred perspective, "energizing moments" provided indicators of the moments when the participants were most highly engaged by the work. This is another approach to attending to the strength of this project, and perhaps other projects as well, based on the idea that student motivation matters. Identifying energizing moments throughout the project can not only provide

further insight into the strength of the project from a student-centred perspective, but can support strategies for enabling future such motivation. These tools were used to derive recommendations towards future iterations of the project. This research comes from the perspective that twenty-first century learning strategies have much to learn about pedagogy from the ways young people are motivated within the context of specific projects, and from their informal learning choices outside of school through technology and the internet.

Keywords: video games, gender, new-media literacy, collaboration, progressive education, traditional education, twenty-first century learning, real-world learning, experiential learning, partnerships.

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Towards Affinity Spaces in Schools: Supporting Game-Design Partnerships as Twenty-First Century Learning Tools.

Chapter 1: Introduction

This research was a case-study based on Arcade Our Way (AoW) which was a collaborative video game design project involving a team of fifteen girls in grade seven and their teacher, five undergraduate student interns, myself and the CEO of a small start-up gaming company. The project lasted a year and three months beginning on September 16th, 2014 and ending on December 7th, 2015. I became involved with this project initially because it was an exciting idea and because it met an interest expressed by the group of grade six girls I had been working with at the partnering school. In April of 2014, I was studying the impact of a social justice game called *Get Water!* on eleven of the girls when they were in grade six. The girls were less interested in the social justice content of the game but had much to say about how they would change the game to make it better in terms of game design (rules, characters, storyline). Shortly after I completed gathering data onsite on May 5th, 2014, Nancy Drew[1], the chief executive officer (CEO), of the small start-up gaming company that made *Get Water!,* expressed an interest in starting another digital media type project related to gender. We came to realize that this new project idea would be a great opportunity to develop a video game related to a gender issue in collaboration with the same group of girls. It seemed to be a great opportunity to meet the interest in game design expressed by the girls and to further our own passion for providing video game related opportunities for girls related to social justice. Nancy Drew had been in conversation with Hermione Granger and Clementine, two undergraduate students, who had

[1] Pseudonyms are used throughout this dissertation

come to her expressing an interest in working on a project related to gender and video games. These two became the main interns who led the initial phase of the project from September, 2014 until the end of April, 2015. The first official project meeting between myself, Nancy Drew, Hermione Granger and Clementine took place in Montréal on September 16th, 2015. As an ethnographic researcher my initial research question was broad, I wondered, what does this project have to offer as a learning opportunity? Answering this question was a challenging task, particularly because it touched on so many different elements of interest to me: creative processes, gender and video games, intergenerational collaboration, social justice, and game design, to name a few.

Objectives of the study. When the AoW project began, I did not have a clear sense of the course the research would take. I submitted a research proposal, which certainly informed my direction but the path I took was not exactly what I expected. Though I tried to articulate more specific research questions at the beginning, a more truthful explanation of what happened is that I ultimately went into the project with only my very broad initial research question: what does this project have to offer as a learning opportunity? The objective of this research was to figure out how this project fits into education at this moment in time. More specifically, in light of my reflections as I watched the project and studied the rhetoric around education, the objective became to develop and sustain AoW as an affinity space. How I came to this conclusion will be described in chapter two. An affinity space is a type of informal learning space where people come together over a shared interest, typically in online environments. People who participate in such spaces learn from one another and work together in various ways according to their own desires and motivation. Many young people participate in such spaces and are highly motivated

to learn (Jenkins, 2009; Gee & Hayes, 2010; Ito, et. al., 2010). As education continues to evolve, affinity spaces are a great resource for informing the dynamics of formal learning spaces. Gee and Hayes (2014) promote the idea that schools should become more like affinity spaces, and bring the importance of further research dedicated to such spaces to light based on their studies related to *The Sims*[2]:

> How these affinity spaces are developed and sustained remains an important question, not only for Game Studies, but for the learning sciences as a whole. In the sites we observed, considerable effort was devoted by the site managers as well as members to sustaining the site's focus, content, and positive social interactions. (p. 35)

Looking at the energizing moments throughout the project became a strategy to further support sustainability of the project over time. Sustainability requires deep engagement by participants, and energizing moments was a conceptual tool used to identify deep engagement and excitement throughout the project and to distill strategies towards igniting such moments in future iterations of this and other such projects. The research questions then became clear:

1. Looking at the project through the lens of "affinity spaces" what suggestions can be made for improvement?
2. Through consideration of "energizing moments" throughout the project, what was happening within such moments that motivated the participants, and maintained their interest?
3. What deflated motivation and interest?
4. Based on these analyses, what are guidelines that could enable future such projects?

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[2] The Sims is short for "simulation" and is a game that simulates everyday life. The player creates virtual characters, also known as Sims, and controls their actions and decisions over the course a day for an unlimited amount of time.

Contribution to the Literature and Significance of the Research

This research study reveals the potential of this collaborative video game design based project partnership to support the transition into education based on a twenty-first century learning framework. Nurturing affinity spaces are a great resource from which to pull strategies that can inform twenty-first century learning environments and Gee and Hayes (2012) indicate the need for further research into how classrooms can become such spaces. Partnership projects between schools and various types of organizations, from video game companies to environmental groups, are being touted as exemplary by influential organizations promoting twenty-first century learning (Soule, 2015), yet further research that looks more closely at such partnerships from *various perspectives* is needed.

Scope of the Study and Limitations of the Research

This research is bound to the contexts in which the project took place in Montréal and Toronto. The grade seven participants were located in Toronto, and the interns, CEO and myself were located in Montréal. The idea was that most communication and collaboration would take place between the two cites in an online environment. Online communications however were more challenging than anticipated, and so overall the connection between the two sites was weaker than expected. This challenge brought some unexpected findings to light, but also interfered with the participation of the grade seven students. It was imagined that they would be engaged, or have the opportunity at least to be engaged throughout all steps of the decision making in relation to the game-design. At its core, this interfered with the potential strength of the collaboration. Where the partnership with the school was easy to establish, comfortable, and

provided a safe space within which to experiment with a pilot project, the trade-off was the distance factor.

It is also true that the partnering school is a very different kind of school in relation to a public school context. It is an all girls feminist school where the classes are small and the teachers are referred to by their first name. Although I aspire to bring the project into various types of contexts, this has not yet happened. The challenges encountered and the strategies developed for strengthening AoW as an affinity space will vary in different contexts. One could ask, what is the point of such a research project then? At the moment the project palette is somewhat limited by its newness. The more times it takes place however, the bigger the palette will become. As more colours become available, more can be mixed, increasing the versatility of the palette. Just as individuals grow through experience, so too will the project itself. A complex task, like child rearing, is not linear. One approach will never yield the exact same child. But this does not mean people cannot improve at child rearing. Such tasks require close attention and reflection to the child rearing process on an ongoing basis so that approaches and actions can evolve based on reflection in action. AoW is also a complex task. Each iteration will be different, but will contribute to and inform all future iterations in an ongoing process of becoming. A recipe is not an appropriate strategy, but a collection of informed strategies or guidelines that will continue to evolve over time, and that can be applied in various ways and to varying degrees depending on context, *is* an appropriate strategy. In many ways the small school in which I already had a history made it an easier space to develop a project like this initially, before launching it into bigger, unknown contexts. This research project was a first step.

Further limitations relate to the reflective nature of the study. In the AoW as a nurturing affinity space analysis in chapter seven, I consider the project primarily through my own reflections. Though I pull many specific examples from the data to illustrate the qualities and short-comings of AoW as a nurturing affinity space, a more nuanced analysis will be important in the future wherein the perspectives of the participants are also taken into further consideration.

Organizations of the Study

This dissertation has been organized into nine chapters. The first chapter is the introduction. The purpose of this chapter was to succinctly situate the purpose of the study by stating the objectives, outlining the contribution to the literature and providing a sense of the scope of the study. The purpose of the second chapter was to describe the way the research unfolded and to situate the research in the current issues in education, namely the push towards twenty-first century learning. Chapter three is a literature review wherein a macro view of the main themes addressed by the AoW project is taken. The main themes involved in the project are: gender and gaming, serious games, collaborative game design and game design based learning. The literature review situates the project in relation to these themes, an provides further justification for the project itself. Chapter four further articulates the theoretical framework. It builds on the themes I addressed in chapter one in more detail. In this chapter the connections between progressive education and affinity spaces are further described and grounded. Chapter five is the methodology section. I will revisit the research questions and further describe the two research contexts in Montréal and Toronto. The interns, myself and Nancy Drew worked together at Concordia University in Montréal, and the grade seven participants and their teacher were located at a school where I was formerly the art teacher, in Toronto. I will describe my

relationship with the school and the AoW project. I will also describe the video game prototype *Ghost Hotel,* which was the goal of the AoW project. This dissertation research however is based on the process involved in the creation of *Ghost Hotel.* Chapter six details the analysis of energizing moments and the involvement of the interns in the triangulation of the moments. There are seven energizing moments that took place throughout the project. These are described in the first part of the chapter. The second part of the chapter reveals the analysis of each of the seven moments. The chapter ends with guidelines for future iterations of AoW and other such projects. Chapter seven details the analysis of the AoW project as a nurturing affinity space. To accomplish this the chapter is broken into sections named after each of the fourteen features of nurturing affinity spaces. Each individual feature is explored and described in relation to the AoW project. This is followed in each section by recommendations for improvement. A summary of these findings is provided at the conclusion of the chapter. Chapter eight **i**s the final chapter and provides further discussion of the project, conclusions and future implications of the research.

Chapter 2

Situating the Research: The Arcade our Way Journey

The ethnographic account of the AoW journey as I describe it here is a description of how I came to figure out the purpose of the research to the project and the approaches I inevitably took in terms of data analysis. This account situates the theoretical framework upon which the research came to be based.

A consistent theme I have explored since the beginning of the project was collaboration. I initially conceived of the project as a community of practice (Lave and Wenger, 1991; Lave, 2011; Wenger, 2001). Lave (2011) began thinking about apprenticeships through what would eventually be theorized as "communities of practice", during her early ethnographic research about *Tailors Alley,* in Liberia, Africa. Here she studied the apprenticeship process of tailors. Her motivation to study apprenticeships came from her discomfort with the idea that anthropologists had formed a binary between formal schooling and informal ways of learning outside of school. This binary rendered formal spaces superior and legitimate compared to informal learning spaces, which were not (and still are not), respected to the same degree (Lave, 2011). Communities of Practice involve a group of people ranging from what she referred to as newtimers to oldtimers, with a shared interest working together to develop their knowledge and understanding of said interest. Newtimers learn through peripheral participation gradually increasing involvement to full participation as they learn by watching and imitating oldtimers. Eventually newtimers become oldtimers.

I could see that there was a kind of apprenticeship taking place through the project. I labelled Nancy Drew and myself oldtimers, the youngest participants as newtimers, and the

interns, Hermione Granger and Clementine, somewhere in the middle. In retrospect this framing is too linear and assumed the oldest participants had the most to offer the apprenticeship. I was also thinking about the AoW project as an informal learning space temporarily tethered to the school for the duration of the project. I still consider the project in this way, however the concept of the community of practice did not quite work.

I came across a paper by J.P. Gee (2005) where he proposes affinity spaces as a new way of conceiving of communities of practice where people come together over a shared interest, typically in online environments. Gee sees affinity spaces as ideal learning environments and promotes the idea that classrooms would be more relevant to young people if they were to become affinity spaces. As I began to look more closely at the concept, I realized that the AoW project, which had been ongoing at the time for several months, had many features in common with affinity spaces.

At the same time, to figure out how the project fit into the current educational climate, I investigated recent trends in education. There had been much controversy in 2014 in the United States related to high stakes testing. High stakes testing means that standardized tests are used to determine important things like the quality of the teachers at a school (High-Stakes Test, 2014). Protests began to take place in 2012 (Strauss, 2012), and the struggle is ongoing. Many families are now opting out of testing for their children (Boccella, 2016; Strauss, 2016). For various reasons, including backlash against standardized testing, twenty-first century learning has become a powerful force and is influencing policy and curricula across the United States and

Canada[3] (Brown, n.d.; Boudreault et. al., 2013; C21 Canada, 2015; Education Sector Reports, 2008; Knox, 2006; Nehring & Szczesiul, 2015; Newswire, 2003; Pearlman, 2006; Premier Technology Council (PTC), 2010; Salpeter, 2008; Schwartz & Stolow, 2006; Wilson, 2006).

The idea behind twenty-first century learning is to provide young people with the skills they need to contend with the complexities of the information age. Some of the main ideas behind it are that we should be focusing on the development of higher-order thinking skills in school. The most referenced skills in twenty-first century learning are often referred to as the Four Cs. They are creativity, collaboration, communication and critical-thinking. From a twenty-first century learning perspective, to develop these skills, learning situations should involve hands-on real-world learning opportunities. By real-world what is meant is projects that have a real purpose in the world, as opposed to projects that are developed to demonstrate knowledge to the teacher for a grade. For example, students could be challenged to develop strategies to help conserve energy in their everyday lives, and then apply those solutions. Real-world problems are typically complex in nature and can have multiple solutions. As such they are thought to engage and exercise higher-order thinking skills.

Media and technology are also important aspects of twenty-first century learning. It is suggested that media and technology be incorporated into all activities in school and used to engage students in various ways and to develop media literacy skills. AoW involved all of these aspects of twenty-first century learning. Given the influence of twenty-first century learning is

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[3]The idea is endorsed by the Canadian School Boards Association: http://cdnsba.org/resources/21st-century-learning) and many provincial curricula have implemented it (See report Boudreault et. al., (2013) @ http://www.actioncanada.ca/project/future-tense-adapting-canadian-education-systems-21st-century/ for details re/ British Columbia, Alberta, Ontario, Prince Edward Island, Québec, and New Brunswick. Québec's curriculum has been based on these ideas for 15 years (see Québec Education Program http://www1.education.gouv.qc.ca/sections/programmeFormation/index_en.asp).

having over curricula across Canada and the United States (Brown, n.d.; Boudreault et. al., 2013; C21 Canada, 2015; Education Sector Reports, 2008; Knox, 2006; Nehring & Szczesiul, 2015; Newswire, 2003; Pearlman, 2006; Premier Technology Council (PTC), 2010; Salpeter, 2008; Schwartz & Stolow, 2006; Wilson, 2006) it made sense to consider the project in relation to this movement.

The more I began to understand twenty-first century learning the more I realized it was really just a repackaging of the main ideas behind progressive education. My position as a researcher and teacher is situated in progressive education informed by John Dewey, with leanings towards more radical pedagogues like Paulo Freire. The following ideas related to Freire are drawn from his book *Pedagogy of the Oppressed* (1968/2008). The ideas related to Dewey are drawn from *Experience and Education* (1938/1998), and *The School and Society and The Child and the Curriculum* (1990), originally published in 1900 and 1902. These two educators can be compared because they both believed in learner-centered education, meaning that students are considered not as empty vessels to be filled with knowledge, but people who have just as much to offer the learning environment as the teacher. Learner-centered education is based on the belief that people construct their own knowledge and so learning is based on both doing and reflecting about action. In learner-centered classrooms the teacher is considered a student and is thought of as a facilitator of learning.

Both Dewey and Freire believed in active learning situations that would support students and teachers in the ongoing process of learning to think critically about the world. Dewey considered active learning to be experiential and hands-on. He also considered it important for people to reflect about their experiences. Dewey saw learning as key to the formation of

democratic societies where citizens continuously evolve their understanding of the world through interaction with their social and physical environment. Freire claimed that classrooms where teachers deposit information into the minds students were oppressive and that praxis, "reflection and action upon the world in order to transform it" (Freire, 1968/2008, p. 87) leads to humanization. Though both pedagogues used different words to describe their pedagogies, they both begin with the idea of active, learner-centered environments. And though they have different words for what their pedagogies lead to, democracy in Dewey's case, and humanization in Freire's case, both could be thought of as producing what I refer to as open-system humans. By this I mean people who are continuously evolving, learning and growing as they experience and do things in exchange with the world around them. Along similar lines, Freire (1968/2008) would consider this as people living "actively *with* the world" rather than "passively *in* the world" (Freire, 1968/2008, p. 75) Teacher-centered classrooms where learners are expected to passively receive information are classrooms where learners learn to live passively in the world. Traditional teacher-centered classrooms can be thought of as producing closed-system humans. From this perspective both the school environment and the world at large have control over the closed-system human who is essentially pushed around by their physical and social surroundings. The word oppression literally means to "press upon" or to "press down" (oppression, n.d.).

When I refer to traditional education in this dissertation, I am referring broadly to education that is teacher-centered and situated in a positivist epistemology or in the belief that we are separate from our surroundings, that the truth is out there to be discovered (Driscoll, 2005). In this context learning is thought to happen external to people. People are not thought to be affected by their experiences, rather they are thought to gain knowledge through observation of

the world (Driscoll, 2005). It is through this type of learning environment that we support the perpetuation of closed-system humans who generally remain in a perpetual state of being. When I refer to traditional approaches to teaching or teaching practices I mean practices based in behaviourist techniques where success is based on rote learning, memorization, and use of tests to evaluate this type of knowledge. When I refer to progressive education in this dissertation, I am referring broadly to education that is learner-centered and situated in a constructivist epistemology or in the belief that people construct their own knowledge through experience (Driscoll, 2005). It is through this type of learning environment that we can support the development of open-system humans.

When I refer to progressive approaches to learning or teaching practices I mean practices based on learning situations where success is based on engaging higher-order thinking skills to solve complex, open ended, real-world problems. I want to make it clear that I do not think that any learning environment is necessarily purely traditional nor purely progressive. Learning exists on a continuum between the two. I also do not want to imply that any pedagogical tool associated with traditional education is something bad. On the contrary, traditional teaching techniques can be very effective. An engaging lecture can be a powerful learning event. A test used to demonstrate knowledge of facts is not a bad thing either. However, it is time that the education system as a whole became situated in progressive education.

Twenty-first century learning is based on the same premise as progressive education which ironically has existed since before the twenty-first century. Many of the concepts promoted through twenty-first century learning are also important aspects of progressive learning (Little, 2013). This twenty-first century learning trend carves a larger space in education for

more progressive and radical perspectives where historically traditional teacher-centered classrooms have dominated the school system in North America. Affinity spaces are contemporary examples of progressive learning environments that have come into being primarily due to the affordances of the internet. By affordances I mean that the way things are designed brings about certain possibilities based on the nature of the design (Norman, 1988). The internet connects people and information in a web format. An affordance of the internet is that it can bring people together over shared interests and that it can produce democratic spaces that are not linear or hierarchical. Affinity spaces are a product of the affordances of the internet. In these spaces, there is no one person in charge and people learn collectively from one another. There are many different ways of being recognized or of achieving status or success. Affinity spaces are great examples of progressive learning environments.

The advent of the internet has produced participatory culture as described by Henry Jenkins (2009):

> A participatory culture is a culture with relatively low barriers to artistic expression and civic engagement, strong support for creating and sharing creations, and some type of informal mentorship whereby experienced participants pass along knowledge to novices. In a participatory culture, members also believe their contributions matter and feel some degree of social connection with one another (at the least, members care about others' opinions of what they have created. (p. 5 - 6)

The internet has brought the opportunity for participatory culture to "rework the rules by which schools, cultural expression and civic life and work operate." (Jenkins, 2009, p. 10). If as Jenkins argues, we are transitioning from a consumer society into a participatory culture, it is as if the

world has finally grown into the perspective of progressive educators. Both Dewey and Freire were essentially working towards the enablement of what I have referred to as open-system humans. Theoretically at its core progressive education means acknowledgement of human beings as active participants in the world, versus passive consumers. The twenty-first century learning trend is essentially a symptom of the need to transition from consumer culture to participatory culture, from an underlying positivist epistemology to a constructivist epistemology, from traditional education to progressive education. Schools are caught in the middle.

I have discussed three main interrelated themes in this introduction: twenty-first century learning, progressive education, and affinity spaces. The push for twenty-first century learning represents a change-over from an education system dominated by traditional education to one that will be dominated by progressive education. As curricula continue to change over to a twenty-first century learning framework, strategies for how to implement this will be increasingly needed in schools. Taking Québec as an example, as a province where progressive education was adopted fifteen years ago, this transition was a challenge (Lessard, et. al., 2015). The reform in Québec's education system took place in 2003, with the implementation of the Québec Education Program (QEP). The QEP is a progressive education based curriculum and therefore also connects with the main ideas behind twenty-first century learning. Though schools continue to be organized based on subject areas, the QEP supports movement beyond subject area silos by situating identity construction, empowerment and construction of world view as the nexus of learning. These capacities are developed through subject areas. The reform was implemented quickly. When the new curriculum was first put in place in 2003, it was a struggle to implement because teachers had been so deeply formed by more traditional approaches, and they did not know how

to contend with the reform (Lessard, et. al., 2015). This caused a surge of negativity towards the curriculum, and the project failed at the time, under the pressure of a big change being implemented all at once (Lessard, et. al., 2015). *Though the struggle to implement the new curriculum was complex and involved a multitude of variables, with the additional understanding that the roots of traditional education run deep, one cannot simply expect everything to transform overnight.

As we move through this transition, it makes sense to take inspiration from progressive learning environments that are already happening because of the internet. Affinity spaces are an example of contemporary progressive learning environments that people are forming of their own accord. Many children and youth participate in these spaces and are more engaged and motivated to learn than they are in school (Jenkins, 2009; Gee, 2005; Ito, et. al., 2010). Many educators and researchers are turning to young people and looking at the informal learning spaces where they choose to participate to inform contemporary pedagogies in schools (Richard et. al., 2015). This is an important strategy in support of the transition. The resources already exist. Affinity spaces are just one example. I have chosen affinity spaces as a reference because they are a description of ideal progressive learning environments and Gee and Hayes (2012) have articulated fourteen features that enable what they refer to as nurturing affinity spaces. I applied these qualitative descriptions to AoW as a tool to help grow its integrity as a progressive learning experiment.

So when I asked myself what exactly the Arcade Our Way (AoW) project had to offer as a learning opportunity, I eventually realized that it can support what is essentially a paradigm shift from traditional to progressive education. AoW is a learning opportunity rooted in progressive education. It addresses all of the most popular keywords related to twenty-first century learning

media and technology based real-world learning experience that engages and promotes the Four Cs through the process of the design of a video game with a social justice purpose. I originally thought of the project as a pop-up progressive education opportunity akin to the trend of pop-up art exhibitions, and pop-up makers markets. These are examples of exhibitions and markets that literally pop up in places temporarily. I envisioned projects like this popping up temporarily in schools to model approaches towards progressive education to support the institution, teachers and students in the transition. After finishing this research however, I now realize that the approach requires further research and experimentation more suited to a long-term partnership with a school to overcome some of the inherent challenges involved in such a complex project. Like Dewey's laboratory school, I imagine this long-term partnership as a lab where ongoing research and experimentation can take place. I do think it will be possible to work through some of the kinks described in this dissertation in the not too distant future, through what should be a long-term partnership with one school. When the time is right, from this can be derived a pop-up format.

When I realized that AoW could be used as a support mechanism for implementing progressive learning strategies and that I wanted to repeat it again, I began to consider the project as a prototype and the goal of the research became to figure out how to improve the prototype. So where I originally conceived of this research as a case-study, I came to realize through the research process that it was actually a pilot project. A new set questions emerged as a result. If this project itself is a prototype, how can it be improved? In what ways can I tailor future iterations of the project to leverage the impact of the project on all participants involved? To answer these broader questions, I decided to use affinity spaces (the fourteen feature of nurturing

affinity spaces in particular (Gee & Hayes, 2012)) as an ideal model through which to compare the project to elicit areas for improvement. These findings shed light on how to improve the next iteration of the project, by addressing the specific research questions listed at the beginning of this chapter.

This section, "The Arcade Our Way Journey", has provided a summary of AoW from my perspective as an ethnographic researcher. What follows is a more detailed unpacking of this problem statement. In the sections that follow, the tensions between progressive education and twenty-first century learning will be discussed. This is followed by a closer look at the varied definitions of real-world learning, the status division between real-world learning and academic learning, and the ethical dimensions and tensions. I also argue that partnerships between schools and various types of organizations will increase as the demand for real-world learning experiences increases. More research that looks closely at such partnerships therefore will be necessary as we transition into twenty-first century learning frameworks.

Twenty-first Century Learning: A Cautionary Tale

Twenty-first century learning is a term currently popular in education and towards which there is a push for implementation of this perspective across Canada and the United States (Brown, n.d.; Boudreault et. al., 2013; C21 Canada, 2015; Education Sector Reports, 2008; Knox, 2006; Nehring & Szczesiul, 2015; Newswire, 2003; Pearlman, 2006; Premier Technology Council (PTC), 2010; Salpeter, 2008; Schwartz & Stolow, 2006; Wilson, 2006). Twenty-first century learning emphasizes the importance of integrated use of media and technology in the classroom to engage students and optimize learning and emphasizes the importance of real-world learning experiences and the development of higher-order thinking skills like the Four Cs,

creativity, collaboration, critical-thinking and communication (Brown, n.d.; Boudreault et. al., 2013; C21 Canada, 2015; Education Sector Reports, 2008; Knox, 2006; Nehring & Szczesiul, 2015; Newswire, 2003; Pearlman, 2006; Premier Technology Council (PTC), 2010; Salpeter, 2008; Schwartz & Stolow, 2006; Wilson, 2006).

The catalyst for the pressure towards these classroom changes comes from the demands of the information age as we evolve out of education based on the needs of the industrial age. In the industrial age, education was meant to prepare students to work in the manufacturing industry (Mitra, 2014). Within this context, the ability to follow instructions was key. Now, within the context of the information age, innovators are needed by the technology industry, and education is being called upon to prepare students for an unknowable future (Brown, n.d.; Boudreault et. al., 2013; C21 Canada, 2015; Education Sector Reports, 2008; Knox, 2006; Nehring & Szczesiul, 2015; Newswire, 2003; Pearlman, 2006; Premier Technology Council (PTC), 2010; Salpeter, 2008; Schwartz & Stolow, 2006; Wilson, 2006). Though we have never been able to predict the future, paradigmatic changes and general societal shifts in technology use are able to take place more quickly. Knowledge and information are widely accessible and ideas and trends spread quickly. New technologies are also more quick to emerge and affect the way we do things on a daily basis.

The popularity of the movement stems from the idea that we can't predict what the world will be like in five to ten years capacities like creativity, and critical-thinking, should be prioritized because they are transferrable to any context (PTC, 2010; Pellegrino & Hilton, 2012). The technology industry, and employers in general, now in need of workers with such skill sets, have been vocal about their concern given the paucity. There is also a general panic in the United

States related to losing control over the technology industry because of the lack of skilled workers, adding pressure to the need for change (Brown, n.d.; Boudreault et. al., 2013; C21 Canada, 2015; Education Sector Reports, 2008; Knox, 2006; Nehring & Szczesiul, 2015; Newswire, 2003; Pearlman, 2006; Premier Technology Council (PTC), 2010; Salpeter, 2008; Schwartz & Stolow, 2006; Wilson, 2006). This panic harkens back to the space race that took place after the first satellite to orbit the earth, Sputnik, was released by Russia in 1957. The United States was fearful that Russia would beat them to the moon, so there was a policy shift took place in education, and science and math became paramount.

Currently, countries outside of the United States are also performing better on international standardized tests that measure the more complex learning outcomes now needed by industry such as creativity and problem-solving (Schwartz & Stolow, 2006; Education Sector, 2008). This has caused a general concern for education from parents, teachers, school boards and industry. The focus on twenty-first century learning however has been largely propelled by economic pressure and industry needs, rather than concern for the development of healthy reflective citizens and the reinvigoration of civic and cultural life (Nehring & Szczesiul, 2015; Resnick, 1987). However, whereas Dewey envisioned education that contributed to a better society where people were deeply invested in their communities and the well-being of others and Freire envisioned education that was humanizing rather than oppressive, much of the push for twenty-first century learning comes from the need for better workers. Whereas on the surface twenty-first century learning seems to promote a perspective akin to progressive education, the intention is actually out of synch with progressive education.

The rhetoric around education and twenty-first century learning generally frames education from the perspective of the production of workers. Such intentions interfere with a progressive vision of education emphasizing citizenship, humanization, and the overall wellbeing of people. Micheal S. Roth, in an article in the *New York Times* in 2012 contrasts Dewey's vision with a report published by the Council of Foreign Relations (Klein, Rice & Levy, 2012), revealing this inherent misalignment between progressive and twenty-first century learning. The report reframes the overall weak public school success rate in the United States as a threat to national security (Roth 2012; Klein, Rice & Levy, 2012). Terrorism is deemed the justification for a more intelligent workforce that can protect the nation. Roth points out the repeated reference to students as human capital within the document and draws a parallel between the instrumentalist rhetoric of the report and the perspective of conservative scholars who consider higher education to be useless for those who are destined for low-paying jobs.

This perspective is completely the opposite from progressive education. The fact that cut-backs to the arts and humanities, the very subjects that would most likely support the critical-thinking skills inherent in progressive learning environments, are ongoing supports the possibility that twenty-first century learning is propelled by different intentions. On the surface twenty-first century learning seems to indicate, after over a century of progressive education's subordination to more traditional ideas, an exciting acceptance. The problem however is that the motivating factor behind twenty-first century learning remains within the economy. Dewey and Freire's visions of an education that would lead to reflective citizenship and humanization is not always the priority of a twenty-first century learning perspective. When twenty-first century learning places priority on economic concerns, it loses its connection with progressive education and the

well-being of students. Riding the wave of twenty-first century learning provides a great opportunity to create space for progressive education in schools however this inherent contradiction requires the careful attention of researchers who are attempting to do this.

Real-World Learning

Real-world learning is an important tenet of both twenty-first century learning and progressive education that further elicits ethical tensions. The idea of real-world learning is not new and has taken on a variety of names and forms through time, such as vocational training and field-trips. In general, it means learning that is rooted in pragmatism, or actual hands-on experiential learning, though it is taken up variously in the classroom and in the literature. There are many terms spanning back in the history of education that relate to the idea of real-world learning, such as vocational studies, now referred to as Career and Technical Education (CTE) (Hoachlander, 2008), field trips (Peterman, 2008), internships, co-ops, communities of practice (Lave & Wenger, 1991), after-school programming (Schwartz & Stalow, 2006), expansive education (Lucas & Spencer, 2013), and out of school learning, to name a few. Situations where the student's experience is located within the actual context about which they are learning, could be considered fully situated. Vocational training where students learn to repair cars by actually repairing cars for example is fully situated. Other examples that are not directly situated within the context about which one is learning, can involve aspects or elements of real-world learning. This latter version is what real-world learning often means at the elementary level, according to the literature. Such learning can involve applications of knowledge to everyday life (i.e. being a smart consumer) (Fair, Melvin, Bantz & Vause, 1998); field trips (Peterman, 2008); simulations within the classroom (San Tan & Ng, 2006), virtual reality simulations (Dodge et. al., 2008);

exploration of the world in various ways through the internet (Germany, 2011); or real-world as it relates to community based or place-based learning (i.e. learning about the community you live in in various ways) (Kauffman, 2015), to name a few examples. Each of these examples can also be more situated or less situated within a real-world context. A field trip to a nature centre where students gather water samples and test the water for chemicals, or identify and count butterflies, is more situated in the real-world than a trip to a nature centre where they simply read about and look at diagrams and photos about water testing and butterflies. Real-world learning through partnerships with groups or organizations outside of the school, where students are provided with opportunities to engage more directly with complex problems, challenges, or projects, are growing in popularity at the secondary level (Hoachlander, 2008; Boud, Solomon & Symes, 2001), and gaining attention at the elementary level as the twenty-first century learning trend grows (P21, 2009). Such practices are more common at the post-secondary level (Boud, Solomin & Symes, 2001), particularly in terms of research related to training in practices like health (El Anasari, Phillips, & Zwi, 2002; Hunt, Bonham, Jones, 2011; Williams, 2005), education, library studies (Fosmire & Macklinand, 2002; Spence, 2004) and environmental studies (Brudiers, Wiek, & Redman, 2010). Real-world learning that is fully experiential and situated is an important element of progressive learning, and is also heavily promoted by organizations that promote twenty-first century learning like the *Partnership for Twenty First Century Learning* (P21).

The push for twenty-first century learning through real-world learning experiences throughout provinces and states (Brown, n.d.; Boudreault et. al., 2013; C21 Canada, 2015; Education Sector Reports, 2008; Knox, 2006; Nehring & Szczesiul, 2015; Newswire, 2003; Pearlman, 2006; Premier Technology Council (PTC), 2010; Salpeter, 2008; Schwartz & Stolow,

2006; Wilson, 2006), presents a highly complex situation related to those who are involved in the articulation and formation of what it means and how it takes place. The partnership for twenty-first century learning's (P21) executive board is composed of CEOs and members from large companies like The Walt Disney Company, Fisher-Price, and Crayola. The strategic council is composed of members from Pearson (publishers of textbooks and standardized tests), The Lego Foundation, and Apple. Such companies have a vested interest in pushing the idea of twenty-first century learning for various reasons. The education market is a large stable market. It provides access to children and youth, the most vulnerable to consumer manipulation (The Alberta Teachers Association, 2015; Media literacy | United Nations Educational, Scientific and Cultural Organization, n.d.; MediaSmarts, n.d.). Schools are perpetually underfunded, and constantly require resources, and teachers are perpetually overworked, and value various kinds of support (Make Believe Media, 2007). The companies affiliated with P21 create products that are promoted as educational. Though the president of the American Federation of Teachers, and a member from the National Education Association also sit on the strategic council, the P21 strategic council and the executive board are most heavily populated by corporate CEOs. Mixing corporate interests so directly with education is certainly not going to guarantee that the interests of learners come first.

This entanglement of corporations and twenty-first century learning exists beyond P21. Other organizations that are pushing for twenty-first century learning are also directly related to industry. Ford's Next Generation Learning (NGL) offers to work with schools to develop partnerships and provides curricula based on past partnerships (https://fordngl.com/). Another organization pushing real-world learning, the National Academy Foundation (NAF, http://naf.org/

about/board-of-directors), with the tagline “Be Future Ready”, is populated with board members such as the chairman and CEO of American Express, chairman and CEO for Xerox corporation, Chairman and CEO of Johnson and Johnson, executive vice president and CCO Hewlett Packard Enterprise, chairman McGraw Hill Financial in addition to a few university based members, including one Trustee Emerita at Cornell University and a Professor of Practice in Education Policy and Administration at Harvard Graduate School of Education. Many organizations pushing for twenty-first century learning skills are heavily populated by corporate interests.

There are however, organizations pushing for the same thing, only as opposed to heavy corporate involvement, these organizations are populated mostly by educators. For example, Career Academies dating back over forty years, emerging from vocational studies (also known as Career and Technical Education (CTE) (Hoachlander, 2008)), aim to bring respect to real-world learning by bridging the gap between academics and technical courses, where historically one stream of students has been deemed university bound, while the other as bound for a technical or applied career stream. The streams have long been separate and distinct, providing students with either a heavily academic curriculum, or a heavily applied curriculum. The idea behind Career Academies is to bring these separate streams together, strengthening both, and enabling access to a well-rounded education for all students. Career Academies take on various forms, definitions, and interpretations, but consistently strive to provide deeper and more diverse experiential learning opportunities for students.

As approaches and emphasis on real-world learning continue to expand, there is clearly also an ethical dimension that is important to explore in such partnerships. Critical engagement with ethical dimensions begins with key questions such as: Who is in charge and why are they

interested in real-world learning? Followed by further questions related to outcomes, such as: Who gains? Intentions need to be clear, and priority placed on student growth and development. Imagine, for example, a situation where students work with a business benefiting from their ideas and perspectives for the good of their learning, and in the end the business profits in some way from their work. Could this not be a cloaked example of child labour, under the guise of learning? What if a partnership formed with an organization engaging in various forms of unethical practices to the environment? There are already partnerships that exist with schools that are ethically questionable and opportunities for taking advantage of educational contexts is a consistent threat depending on the interest and intention of the partner. McDonalds for example, has already reached out to schools under the guise of helping by providing sporting equipment, and promoting physical exercise, while essentially creating living advertisements through their ongoing interactions with schools (Make Believe Media, 2007). Likewise, in the United States, Channel 1 loaned equipment to a school who could not afford it with the tradeoff that students were exposed to twelve minutes of news and advertisements every morning (Make Believe Media, 2007). Corporations like M&Ms and Colgate provide textbooks featuring their products (Make Believe Media, 2007). On their website, the Alberta Teachers Association asks, “do corporations have a place in schools?” They point out that the billion dollar marketing industry targets primary and secondary students because there are few regulations to protect them (The Alberta Teachers Association, 2015).

While the intention of corporations are quite clear, each of these examples also remind us to ask at what cost*?* On the other hand, real-world partnerships between schools and various other types of community organizations such as non-governmental organizations, local parks, and

retirement homes, have the potential to be extremely beneficial on many levels, offering situated learning experiences that could conceivably be powerfully symbiotic and could deepen and enrich learning for all parties involved. It is important in our contemporary climate however, not to make the assumption that such partnerships are automatically beneficial, or without cost as there are many angles from which it is important to interrogate this approach to learning. Given the increased push for real-world learning opportunities under the umbrella of twenty-first century learning skills, it will become increasingly important to closely examine community partnerships; the benefits, draw-backs, and challenges, from various perspectives.

Real-world learning is front and centre to twenty-first century learning according to the largest organizations that are backing such changes in education. Currently, the largest promotion and support for twenty-first century learning comes from P21, the most heavily referenced organization in the literature (Education Sector Reports, 2008; Klein, Rice & Levy, 2012; Knox, 2006; Newswire, 2003; Nehring & Szczesiul; 2015; Pearlman, 2006; Salpeter, 2008; Schwartz, & Stolow, 2006; Wilson, 2006). Other organizations include The North Central Regional Educational Laboratory; The US Conference of Mayors; and The Organization for Cooperation and Economic Development (Silva, 2008). P21 promotes what they consider to be exemplary twenty-first century learning schools across the United States, each example involving real-world learning through partnership with external organizations.

A recent blog post by the director of P21 (Soule, 2015), describes teachers as "connectors, helping students bridge the gaps not only in knowledge, skills and dispositions, but also making real world learning connections among school, home and community environments." She describes three exemplary projects. The first refers to a project with a software developer,

where students provided feedback on newly developed educational software. The second example involves a partnership with a state park where children are involved in research and growing native plants to restore the park back to its original habitat. The final example involves a three-way partnership between the local university, community college and energy based businesses and engages students in the challenge of coming up with solutions to energy related problems. There is also a case-studies section on the website where more detailed explanations of such partnerships are shared. The organization has also implemented an assessment rubric that takes into consideration various aspects of twenty-first century learning environments. A report entitled "Patterns of Innovation: Showcasing the Nations Best in 21st Century Learning" (Brown, n.d.), has begun such investigations by looking at broader common features that are emerging across exemplary schools in the United States, but this work has just begun. The importance of a wide range of investigations and perspectives about real-world learning will be imperative moving forward with such partnerships with schools, as real-world learning opportunities are considered central to both twenty-first century learning and progressive education.

Real-World Learning, Media, and Technology

Real-world learning experiences based on media and technology can greatly support teachers who struggle to integrate technology in meaningful ways (Jenkins, 2009). Dewey (1900/1990) harboured a hope that "an imaginative use of new technology may bring the ideal closer to our grasp" (p.xi). Though the role of technology and education is convoluted, in many ways it has allowed for increased democratic participation on behalf of young people, given that they can share their ideas and opinions with large audiences. Where education is struggling to be

more relevant within our contemporary context, young people are managing their own education through technology. The way young people interact with technology however often leads to tension within the classroom, where they do not have the opportunity to be recognized for, and to deepen these technological skills they are already developing on their own (Gee, 2005; Jenkins, 2009; Ito et. al., 2010; Richard et. al., 2015). James Paul Gee (2005) posits that students are learning plenty outside of school in ways that school learning pales in comparison. Ito et. al., (2010) point out that young people learn through and around technology by hanging out together in various ways involving technology and that these ways of learning are not valued or taken into consideration in formal learning environments. Moniques Richard (Richard, 2005c; Richard, 2012; Richard, Lacelle, Faucher, & Lieutier, 2015) studies young people's informal media based productions to inform media based pedagogies. Education has the responsibility of respecting and learning from young people, particularly in relation to technology where adults have much to learn. Teachers and researchers can take inspiration from these environments and evolve formal learning environments accordingly. At the same time, it is important that we pay attention to what young people are not quite able to learn and do on their own. Jenkins identifies three such problems related to media literacy. From a position of respect for participatory cultures and what young people are doing on their own outside of school, Jenkins (2009) nevertheless points out that youth are not necessarily developing the deeper critical-thinking skills that are important to their ongoing digital activities. He calls this the transparency problem. Teachers often assume that because young people are engaging in so many media experience, they are actively reflecting on their media experiences, but this is not the case. There is also a problem of access, where not everyone has the opportunity to engage in media related endeavours. Often youth who have

developed the most comfort with technology also dominate computers in schools, edging out those with less experience. This is what Jenkins refers to as the participation gap. Finally, the online world is a complex social environment where young people require support related to ethics. This is what Jenkins refers to as the ethics challenge. Media production provides the opportunity to engage with these problems.

Participatory cultures happen because people participate in the production of their own media, rather than simply consuming what is out there. The idea of participatory culture resonates with progressive learning because it is based on active participation versus passive consumption. Freire explains that the passive consumption supported by transmission based education in the classroom teaches young people to be passive receivers of information in their everyday lives. When we are not critically and creatively engaging with the world through reflection and action, the world has to power to impose itself upon us. Relatively inexpensive tools of production and the ability to publish and share media work widely has made it possible for young people to have their voices heard and to offer a heterogeneity of perspectives to counter mainstream media's limited normalizing vision of what matters. Of the choices of media out there, video game-making tools have only recently started to become more accessible in terms of user-friendliness and cost (Salen, 2007). Video games are extremely popular (92% of children and youth ages two - seventeen play (Tijerini, 2013) and have formed an industry that generates more money than film, expected to hit the eighty billion mark this year (Tijerini, 2013). Like any form of media, games can propel clichés and stereotypes (Children Now, 2001; Jansz & Martis, 2007; Leonard, 2003; Leonard 2006; Williams, Martins, Consolvo, Ivory, 2010). They can also subvert them (Delamere & Shaw, 2008; Consalvo, 2003; Richard, 2005; Giroux, Lankshear,

McLaren and Peters, 1996). This renders them an important medium for media-literacy based discussion and exploration in school settings but also poses a challenge because teachers generally do not have the time to learn how to integrate this medium into learning contexts (Kirriemuir & McFarlane, 2004; Bourgonjon et al., 2013; Bakar, Inal, and Cagiltay; 2006). Real-world learning partnerships that bring game design opportunities into schools can help to overcome this challenge.

Towards porous classrooms. As education continues to evolve and classrooms continue to change in character, they are becoming less isolated from the external world. Earlier in this chapter, I briefly outlined some real-world strategies that schools have implemented over time, and highlighted the challenge in perception that has relegated real-world learning to play a subordinate role to academic learning. The increasing emphasis on experiential real-world learning is an indication that partnerships between schools and the community at large, including community organizations, businesses, universities, and corporations, will also continue to increase. Strategies that have existed for some time, as outlined in this chapter, such as vocational studies now known as career and technical education will continue to increase in visibility and respect and will be sought after. Newer examples of such porousness between classrooms and the real-world exist already in a variety of forms, further indicating the propensity for growth.

Cities of Learning for example, is an increasingly popular concept that is spreading across North America. Complementary to Dewey's idea that life is learning, Cities of Learning conceives of entire cities as learning environments. Through digital badges, similar to the idea of girl guide badges marking the accomplishment of a task, students can track their personalized

learning through various examples of experiential learning within a variety of environments throughout the city. This is happening in various cities in both Canada and the United States, with Chicago CCOL, n.d.) leading the charge. Cities of Learning was originally funded by the MacArthur Foundation and DePaul University's Digital Youth Network, as well as the Connected Learning Alliance (Cities of Learning, n.d.). This led to further funding from the MacArthur Foundation to form the organization LRNG (not an acronym), put in place to close the divide between those who have access to twenty-first century learning opportunities and those who do not. LRNG is described as "working together with schools, city leaders, businesses and community organizations such as libraries and museums, LRNG is building an ecosystem of learning that combines in-school, out-of-school, employer-based and online learning experiences into a seamless network that is open and inviting to all youth" (LRNG: Redesigning Learning for the Connected Age : LRNG, n.d.). The idea is to bring schools into partnerships with communities to provide opportunities for young people to follow their ambitions.

Another indication of the growth of contemporary real-world learning strategies and the subsequent porousness of classrooms, comes from a thought experiment in the form of a game, conducted by Jane McGonigal and the Institute for Play. McGonigal is a futurist and she experiments with future forecasting through game play (Kettle, 2016). This entails taking a situation that is highly possible in the future, and inviting people to reflect about it through game-play, with the intention of enabling a better future. For example, the game *World Without Oil* invites players to imagine how they would change their lives if the world ran out of oil. Players document their lifestyle alterations and post them online as a strategy for mobilizing ideas for

living without oil. This example of an augmented reality game, where the scenario takes a real problem and hyperbolizes it through a fictional story.

Recently, McGonigal and the Institute for Play created another such augmented reality game, based on an educational concept similar to the Cities of Learning project. In this not necessarily so fictional future of 2026, we are to imagine that learning becomes "a kind of currency that ties together every aspect of our lives." (ACT Foundation And Institute for the Future Reimagine The Future Of Learning, 2016). In this future what is referred to as *The Ledger* is used to track all of the types of learning people engage with within their everyday lives, for example, cooking, or making art. When they learn something new in this way, they can receive edublocks from other people, which represent one hour of learning in any subject. Edublocks can be issued by anyone. Every human has a bank of experience that is tracked, and then can also qualify them to teach others the things they know. For example if you take a university course, you then become qualified to teach what you learned. Students, to pay their student loans, can instead teach another person online about what they learned. The game aspect related to this fictional future, invites people to share their insights about how this reality would be in terms of "positive imagination" and "shadow imagination" (Learning is Earning 2026, n.d.) where positive tracks the great things this scenario could inspire, and shadow provides space for people to share their fears and what they imagine could go wrong. An example of a positive is, "I envision organizing a trusted consortium of domain experts who assess the degree of mastery of skills and award electronic badges." (Dodds, 2016). An example of a negative is, "A reciprocal fraud emerges to produce and share edu-blocks, with people trading edublocks to one another without actual learning" (Bannear, 2016). In the same way that *World Without Oil* presents an

example of a game that enables a certain kind of real-world learning experience about a conceivable not too distant future reality, this future of learning scenario has players propose ideas to contend with such a reality in education. This game is both an example of a type of real-world learning experience and, given that these augmented reality games are futurist visions, not necessarily far-fetched in their hyperbolic notions of reality. This is another indication that education is moving in the direction of porous classrooms.

As classrooms become increasingly connected to the world beyond the school walls due to the demand for real-world learning opportunities, there is a need for researchers to look more closely at both the nature of such partnerships, at intentions and their effectiveness for learning. Notions of exemplariness and success should be interrogated from a wide variety of perspectives.

Girls and Video Games

A further goal of this project was to provide a game design opportunity for young women in a world where game-play and game design are highly gendered as male (Jensons & DeCastell, 2011; Delamere & Shaw, 2008; Kain, 2014). The plan was to create a s*ocial impact game* (also known as *games for change*, *social justice games* or *persuasive games*), a newer genre of video game that forms a subset within the "serious game" category. Serious games broadly includes games designed to meet goals other than entertainment, such as informing, persuading, or changing behavior (Dahya, 2008; Dasgupta, Tureski, Lenzi, Bindu & Nanda, 2012; Katsaliaki & Mustafee, 2012). If it is assumed that social justice issues are important to discuss in school, as a central theme for a media production opportunity it is an ideal theme because producers have to engage with the issue in order to address it through media.

This project offered an opportunity for all participants involved to learn from one another with a concentration on leadership. The idea was to create a game that in some way questions mainstream, hegemonic ideas about leadership where leaders are thought to be strong outspoken white men. Discussion between participants about alternative forms of leadership indeed revolved around a variety of powerful ideas. For example, they discussed at length the idea that leadership can come in many forms, and that one's capacity to be a leader is not something they are necessarily born with but can be greatly affected by the way they are raised and treated by their parents (audio transcript, November 14, 2014). The project engaged participants in critical-thinking related to the topic and also provided an opportunity to engage critically with ideas about video games themselves on a deeper level than they typically do both within school and within their everyday relationship with games (Questionnaire #1, November 14, 2014; Fieldnotes, April 15, 2014). Building a relationship with video games is a particularly important opportunity for girls. Video games are considered by many scholars to be one way of building an interest and comfort with technology at a young age (Walkerdine, 2007; Harvey, 2011; Baytak & Land, 2010). Technology and video game domains continue to be dominated by men (Jenson & de Castell, & Fisher, 2007; Jenson, Fisher, & de Castell, 2011). Misogynistic behaviours and attitudes continue to pervade (Delamere & Shaw, 2008; Kain, 2014). Offering learning opportunities related to this domain for girls in a context where they can feel comfortable and empowered is needed. Balancing out the gender domination in the world of technology begins by offering opportunities for girls to work with technology in schools in a variety of ways from a young age.

Chapter 3

Literature Review

In this chapter, literature about video games and gender will be discussed to further situate and justify the project. Although the research itself did not specifically focus on gender, the role of gender in the project cannot be ignored. When I use the term gender here, I am referring to the ways in which mainstream society imposes restrictive binary views of what it means to be a boy and what it means to be a girl. For example, though girls tend to play video games as much as boys as young children, by middle school the tendency is for girls to steer away from technology because it is highly gendered as male and perceived as something that is both uncool and unnatural for girls (Schofield as cited in Jenson, de Castell & Bryson, 2003). When I refer to girls and boys, males and females in the project, I am referring to the gender with which they identify. Providing girls with opportunities to engage with technology in school, particularly in the absence of boys (at least initially), is an important strategy towards overcoming gender discrepancies in fields related to technology such as computer science and video game design.

The following literature review provides a history of the research on gender and video games, in the *Games, Toys and Gender Through Time* section, followed by the *Performing Gender in the Gaming World* section, making a clear case for the relevance of all-girl video game related projects. It leads into the history of serious video games, or video games that are created with a purpose beyond entertainment (Susi, Johanesson, & Bucklund, 2007; de Freitas & Liarokapis, 2011; Katsaliaki & Mustafee, 2012), in *The Serious Games Movement: A Social Justice Twist* section. Within this broad category of games, this research project is about a more

specific genre known as social justice and humanitarian video games sometimes also referred to as games for change or social impact games.

In the *Collaborative Game Design* section, approaches to collaborative game design are brought to light from various perspectives from social justice and humanitarian game-design strategies to classroom use and educational video game design. Though the field of video game research itself in general is still young (Brown, 2008), social justice video games as an area of research within video game research more broadly is very new (Susi et al., 2007). Research about video game *play* and learning has also been more widely explored than video game *design* and learning (Kafai, 2006). The final section of this literature review touches on *Game-Design Based Learning* and exposes the discrepancy between attention to video game design and video game programming. Computer programming is on the rise in education, more so than attention to design. This discrepancy interferes with media literacy education for which understanding visual design is imperative. This account articulates the relevance of the AoW project from a macro perspective relating it to video game and gender studies, social impact games and education and game-design and learning.

Games, Toys and Gender Through Time

Within the games and toys landscape in general, there currently exists a hard line between boys' games and toys and girls' games and toys. In the 1960s, feminists saw children's toys, books and media as playing a major role in socializing children to accept gender-specific and highly restrictive social roles, and pushed for "dress codes to be condemned, coed sports to flourish, fairy tales to be rewritten and toys liberated." (Cassell & Jenkins, 2000a, p. 18). In 1974, the *Free to be You and Me* campaign involved books, records and television specials,

encouraging boys to explore their feelings and play with dolls and sought to encourage more competitive attitudes in girls:

> Such programming broke down fixed ascription of gender roles promoting a unisex ideal where everyone was free to choose identities and activities they found most interesting and comfortable for them. Despite this rhetoric of individual choice, the focus was clearly on transforming the play environment to foster a transformation of traditional stereotypes and to encourage a fusion of masculine and feminine identities. (Cassell & Jenkins, 2000a, p. 19)

This push for openness of gender was ideal. Recently however, the debate of gender segregation of toys was highlighted by social media because of backlash at Lego advertisements and sets made for girls (Miller & Gray, 2012). In response, a Lego advertisement from the early 1980s was heavily circulated, wherein a little girl wearing jeans and a t-shirt holds her creation with the simple caption “what it is is beautiful”. This reminder of the past made it seem as if we were moving backwards when it comes to liberating ourselves from gender expectations. The increase in gender segregation that took place through the 1990s in digital and non-digital games and toys, can literally be seen in toy stores today, where borders are created between blue and pink boxes, increasingly reifying the perceived choices available to both boys and girls through normalization. Girls are expected to play with the beautiful princesses in pink dresses where boys are expected to play with the superheroes that come in blue boxes.

(Miller & Gray, 2012)

(Jen, 2011)

Video games have become powerful sites of socialization (Fantone, 2009). In the early 1990s, Fantone (2009) argues, video games offered more of an opportunity for girls to re-territorialize gender by becoming male characters or monsters with guns in environments that provided them with ways of experimenting with gender and possibility, whereas now, particularly with simulation games, this more open space of experimentation and play has closed and games have now been re-territorialized into the "pre-existing canon of female sociality." (p. 221). Such games, she explains, are based on stereotypical female activities, such as shopping, flirting and

socializing. Whereas there was a moment in time where video games offered an escape of the dominant ideologies, Fantone argues that this moment has long passed.

Since the early 1990s, the world of video games and video game research has been dominated by boys and men. They have been the assumed players of video games, and often the ones who are researched although this tendency is changing. Video game revenue is derived from 75 – 85% male consumers and men hold more powerful jobs in technology related fields, and within video game companies, and small numbers of women hold positions in computer industry or academic computer science (Klawe, 2002; Baytak & Land, 2011). Women make up 12% of the game design and development workforce in North America, though most are involved in human resources and management (Jensons & de Castell, 2011). Most heroes in popular games are adult, male, and white (Children Now, 2001; Jansz & Martis, 2007; Leonard, 2003; Leonard, 2006; Williams et al., 2010), and such under-representation can lead to disinterest, and perpetuation of under-representation (Williams et. al, 2010; Children Now, 2001). Males dominate the global video game industry in various ways.

The study of girls and their interests and habits related to video games didn't become its own research area until the year 2000 with the publication of *From Barbie to Mortal Kombat: Gender and Computer Games* (Cassell & Jenkins, 2000). Prior to this, gender studies related to video games were a sub-category of the broader area of research about girls and technology, rather than a field of study in its own right. Video games in education were seen to hold both great promise and great fear for teachers and parents alike (Harvey, 2011). When it comes to gender in particular, there were different fears related to video games for boys and girls. It was feared that video games would have too much of an influence over boys in terms of violence

(Brown, 2008; de Castell and Jenson, 2003; Children Now, 2001) and addiction (Kirriemuir & McFarlane, 2004), whereas girls were perceived as needing to engage with games to create a deeper relationship with technology, consequently opening up career choices and possibilities in the future (Walkerdine, 2007; Harvey, 2011; Baytak & Land, 2010). Girls today are said to play video games just as avidly as boys when they are young. When it comes to middle-school, interest wanes, with the exception of playing casual games[4] (Hayes, 2011). At this age, girls also tend to hide any interest in math and science. Hayes (2011) draws a parallel between these two phenomena. By the time they reach puberty, there is a high degree of pressure for both girls and boys to behave according to certain gender expectations with little room for experimentation (Hayes, 2011). As a result, science, math and technology become inappropriate and uncool interests for girls (Hayes, 2011). AoW was developed with the intention of working closely with a group of girls in middle school to provide an opportunity for them to explore, build and possibly maintain a relationship with games and game-making. This opportunity had the potential to address what Jenkins (2000) refers to as the participation gap. The participation gap is defined by Jenkins as one of three core media literacy problems where some young people have less access to new media technologies and gateways into participation than others (Jenkins, 2009, p. 15).

Opportunities for girls to have safe access to participation in the world of video game design are particularly important because this domain continues to be dominated by men and there are many contentious situations that have emerged in recent media where women have been directly threatened by males from gaming communities in a phenomenon dubbed gamergate (Kain, 2014). The term gamergate was coined to describe ongoing negative misogynistic

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[4] Casual games are not complicated to play and require little time commitment.

behaviours within this domain. Providing young girls with the opportunity to develop a relationship with video games is important to ensure they experience games from various perspectives and are provided with a variety of types of opportunities to develop a relationship and interest in technology (Jenson, de Castell, & Bryson, 2003; Klawe, 2002). To balance the world of video games in the future and to open up the use and meaning of games, girls require access to video game play and design within safe environments.

Within the academic research related to video game and gender studies, it is also true that historically girls have been greatly misunderstood. Jenson and de Castell (2010) pointed out the recurrent problem of the simplification of the role of gender to the point where we presume differences between boys' and girls' preferences in games, and their abilities, stem from their sex. Jenson and de Castell (2010) argued that this conclusion was not accurate, yet had been propelled by a perfect storm of ineffectual research. First of all, there was a lack of diversity in the research methods early on. Second, conclusions were deduced from large-scale, empirical, quantitative, mostly survey-based data, which left little room for nuanced analysis (Jenson & de Castell, 2010). These quantitative studies, for example, mistakingly indicated that women and girls played video games just as much as boys however online card and board games were considered to be in the same category as role-playing and first person shooters. Online card and board games are not video games as much as they are digital versions of paper games. These classifications of gamers then are not the same and the conclusion that game play is equal between the genders is therefore an inaccurate statement. Such lack of attention to the finer nuances of research, skews information in favour of approaching gamers as a homogenous group where gender is then deceivingly considered a non-issue (de Castell, Jenson & Bryson, 2003). Another problem with

research about girls and games is the interpretation of game preferences as facts, as opposed to considering the ways choices may be influenced by other factors like gender expectations (de Castell, Jenson & Bryson, 2003). This tendency plays out in the Girls Games Movement (GGM), where for the most part games made according to these preferences have not been successful in becoming popular game choices by girls (Cassell & Jenkins, 2000).

During the 1990s, many conclusions were drawn in the academic research related to girls and video games that have since been revealed as misunderstandings. Since the late 1990s, research on video games and girls reported that girls prefer collaborative, exploratory games, and shy away from confrontation and violence. Once this conclusion was drawn, it was assumed to be irrefutable, whereas such assumptions should be further problematized (Jenson & de Castell, 2010). Discourses about girls and game preferences are just now moving away from simplified, universalistic, stereotyped accounts of gender preferences toward being seen as highly contextual and therefore dependent on social, cultural and varying factors (Jenson and de Castell, 2010; Harvey, 2011; Walkerdine, 2007; Fantone, 2009). Indeed, "while girls and women do play, what and how they play is always negotiable, context dependent, and usually not necessarily in the company of other girls and female players" (Jenson & de Castell, 2010, p. 56).

It is irresponsible for a researcher to assume any group of people to be homogenous in terms of things like cultural identity, gender or gamer culture, as it doesn't allow for the more nuanced understanding, and gross misunderstandings can ensue.

To get beyond the broad generalizations of past gender and video game research, de Castell and Jenson (2003) have been pushing the idea of the importance of the cultural context of video games in over a decade of research.

> In gaming culture, games are not just played, but talked about, read about, cheated, fantasized about, altered, and become models for everyday life and for the formation of subjectivity and intersubjectivity. There is a politics, an economy, a history, social structure and function, and an everyday, lived experience of a game. (Jenson & de Castell, 2003, p. 651)

What Jenson and de Castell claim has become habitual ignorance of the context of games, has led to these repeated misinterpretations of video game related data, and the subsequent normative sets of accompanying assumptions (Jenson & de Castell, 2007; Jenson, de Castell & Fisher, 2011). For example, they point out that it has been reported that girls are more closely supervised by parents than boys and often do not have direct access to gaming equipment (Walkerdine, 2000). These facts obviously interfere with girls and their game related decisions, yet it is often assumed that girls do not play because they dislike games. Therefore, generally accepted facts regarding the types of games that girls like and the types of games that boys like continue to be presented as if such choices are implicitly gender based (Jenson & de Castell, 2003; Jenson & de Castell, 2011). Another often overlooked nuance is that responses to questions about gaming also depend on who is asking and in what context. For example, in a study of discourses in a school based computer culture, researchers were told by one young man that if a male is asked by another male if they play games, they tend to say yes, but if a female asks a male, they are likely to say no so that they are not perceived as social misfits (Jenson & de Castell, 2005). Jenson and de Castell essentially warn of the tendency to take information at face-value, without interrogation or critique. They call for a complete rethinking of research design and gender and gaming to get past our misunderstandings of girls.

Performing gender in the gaming world. In general, we know that technology is certainly not neutral, though in educational settings, it is often treated as such (Jenson & de Castell, 2005). Gendered beliefs and values affect us through many channels such as design (Dickey, 2006; Harvey, 2011), media, marketing, production, and through spaces like arcades or Local Area Networking (LAN) parties (Harvey, 2011; Jenson, de Castell & Bryson, 2003). As explained by Harvey (2011), "[T]he interrelatedness of not just content and culture, but play, interaction, context, experience and access, all of which are marked by discourses and material structures demarcating hegemonic notions of masculine and feminine" (p. 178). Like movies and television, video games contribute to the social construction of gender. Jenson, Fisher and de Castell (2011) draw from Butler's ideas about gender as a performance of the roles we are expected to play. Butler (1999) explains performative gender acts as the result of the repetition of ideas of what a woman is, to the point where such performance become normalized and we believe this is what a woman is supposed to be. We are surrounded by sets of performative norms that have a powerful influence over our desires and behaviours. Technological competence is a construct belonging to the realm of the male performing masculinity, and by contrast, as in any relationship conceived in terms of binaries, when women perform the social construct of femininity, technological competence is not a component of the character prescription (Jenson, de Castell & Bryson, 2003; Klawe, 2002). Displays of technical competence by girls can call into question their femininity and lead to bullying and isolation (Schofield as cited in Jenson, de Castell & Bryson, 2003, p. 562). Games are made for males, who are considered the experts (de Castell, Jenson & Bryson, 2003; Jenson & de Castell, 2011; Harvey, 2011; Walkerdine, 2007; Klawe, 2002). Technology deemed as male territory keeps girls out of both computer and

gaming spaces because they feel they do not belong there (de Castell, Jenson & Bryson, 2003; Klawe, 2002).

Jenson and de Castell (2007) explain that because of the power of gendered performance, interpretation is an indispensable tool for gender research. A researcher must question anything that seems to be a given. Terms that are often used to gender competition, for example, should constantly be questioned. What does the term competition actually mean? Both boys and girls are competitive, though the form of competition may look different and vary in different contexts. What often happens is words like competitive are associated with boys and and so the binary assumption is that girls are not competitive. Therefore there is little nuanced understanding of what competitive may mean to girls (Jenson & de Castell, 2007). Intellectual spaces have to be created where it is possible to discover more than what we already think we know about girls and video game play. In other words, Jenson and de Castell (2007) say we should be surprised by what girls like best.

When girls are provided with all-girls spaces to explore games they begin to realize the assumptions they themselves make about gender (Jenson, de Castell & Fisher, 2011). In general, girls and women are often stereotyped in terms of their actual gameplay tactics and strategies, but this is overcome when safe all female spaces form. Behnke (2012) describes the stereotypes about female players who play *World of Warcraft*, who are assumed to take on supportive rather than active roles, and are less interested in competition and combat. By looking at women through productive play, that is by considering games as sites of cultural production and imagination where the real and digital worlds intersect, she found that women joined the *Ladies of Warcraft* female only guild to escape the racism and sexism that existed in many other guilds.

Belonging to a guild where women and girls feel comfortable seems to lead to more of an inclination to experiment with technology in various ways such as modding (modifying various aspects of games) (Behnke, 2012). Similar to studies by Jenson and de Castell, Behnke suggests that all girl spaces, where girls feel comfortable, enable them to connect with video games in various ways that get beyond the rhetoric that girls cannot play video games; that they only enjoy certain kinds of games; that they do not enjoy games at all; or that they shy away from violence and competition (Behnke, 2012; Jenson & de Castell, 2003). It is a challenge for girls to find comfortable online gaming spaces that are free of sexist behaviours, further blocking their entry into this domain because choices and options for participation are not forthcoming.

Just as online video game spaces reinforce gender stereotypes, and are uncomfortable in various ways for girls, the same is true for off-line gaming environments. Local area network (LAN) tournaments bring gamers together to watch a limited number of competitors prove themselves to be the best players of a given game, like *Halo 3*. During such events, girls and women are often relegated to supportive roles such as cheerleaders or promotional "booth babes" (Taylor, Jenson, & de Castell, 2009). This tendency further marginalizes girls and women to the sidelines, and does not bode well for the desire to increase involvement of women and girls in digital games. Female players or groups of players (clans), who enter tournaments, tend to suffer direct, sexist, misogynist, treatment. An example of this treatment is taken from a study by Delamere and Shaw (2008), wherein they interviewed a clan of female gamers who described an experience during a LAN tournament, where their computers were interfered with and the message "it's beginning to smell like prawns in here" scrolled across their screens just before

each of their computers froze and shut down. Girls who enter gaming spaces tend to be treated in negative ways by males, making it difficult to develop relationships with gaming.

As outlined above, there are various ways that girls are misunderstood in video games and related contexts. These issues relate to research, social norms, pressures, and gaming spaces, but the most obvious way that girls are misunderstood in the world of video games is by the limited ways in which they are represented through games and by literally not being represented in the games themselves. Many games propel not only gender stereotypes, but also racial stereotypes through content, packaging and advertising. Just as Disney movies and fairy tales often depict stereotypes such as the maiden in distress and the male hero, in addition to racial caricatures, representations of females and males in games echo such constructs. Women rarely appear in games as the main characters, except as damsels in distress (Children Now, 2001; Jansz & Martis, 2007; Leonard, 2003; Leonard 2006; Williams, Martins, Consolvo, Ivory, 2010). Female characters, particularly non-Caucasian women, are often depicted as victims, and are generally over-sexualized in terms of being depicted as scantily clad with large breasts and small waistlines (Children Now, 2001; Jansz & Martis, 2007; Leonard, 2003; Leonard 2006). Female video game characters are more than twice as likely to depict stereotypical female character traits such as sharing and helping (Children Now, 2001). Many mainstream games like the *Grand Theft Auto* series (Rockstar Games), are violent and overtly misogynist. Men are depicted in dominant positions, and appear more often on the covers of games (Cassell & Jenkins, 2000). Games made for younger audiences contain a higher degree of gender equity, but are not representative of the games that are most purchased by players (Williams et al., 2010). Such a limited vision of what people are and who they can be is dangerous. Williams, Martins, Consolvo and Ivory (2010)

posit a parallel between video games and television. A literature review revealed that the more constructs we are exposed on television the more accessible they are to us when we attempt to recall information about social objects. In other words, we are more likely to recall the types of people we see repeatedly, and those who are never represented in the media become invisible. This effect renders all but white men invisible in mainstream gaming. Representation in video games reflects a problem that exists in most media where powerful white male characters dominate.

The stories that video games tell both echo and contribute to societal hegemonies that reflect gender and racial stereotypes (Children Now, 2001; Leonard, 2003; Leonard 2006; Williams et al., 2010), and contribute to inequality and an imbalance of power and opportunity in the real world (Leonard, 2003; Leonard 2006; Williams, Martins, Consolvo, Ivory, 2010). It is now generally known and accepted that such norms are circulated by popular media such as television and film (Williams et al., 2010). Video games are in a position of power in terms of influence as some argue that they work on a deeper level due to their interactive nature, and their extreme popularity, which surpasses that of the film industry (Leonard, 2003; Jansz & Martis, 2007). Leonard further described the normative power of video games in his analysis of *Grand Theft Auto III* (GTAIII), understood within the context of racial power-dynamics played out through exotic tourism. Referring to the exotic tourism literature, he explained that in the same way that tourism is an ideology offering a "package of ideas about industrial, bureaucratic life…..manhood, education and pleasure" (Enloe as cited by Leonard, 2003, p. 4 – 5), video games like GTAIII also act as such packages, in terms of race, nation and gender, providing people with the private space to try on the other through the interaction of the game with their

imagination (Enloe as cited by Leonard, 2003, p. 4 – 5). He sees GTAIII as an extension of the "Western historic project of securing pleasure through the other" (Leonard, 2003. p. 5). Video games, like any media, can both interfere with and contribute to hegemonic beliefs through content. Given their popularity, video games hold great power as both an oppressive tool if we engage with them passively, and a transformative tool when we use them to present narratives that are alternative to hegemonic views.

The Serious Games Movement: A Social Justice Twist

Video Games continue to receive negative attention in both the mainstream media and academic research, in terms of concerns about violence (Children Now, 2001; Delamere & Shaw, 2006; Anderson & Bushman, 2001 as cited in Kirriemuir & McFarlane, 2004; Emes, 1997), obesity (Bogost, 2008), toxic gamer culture (Taylor, Jenson & de Castell, 2009; Consolvo, 2012), and addiction (Kirriemuir & McFarlane, 2004), and are less commonly perceived for their potential to do good. This trend is changing as a generational shift takes place. More adults now have grown up with games and appreciate them on many fronts and are also becoming teachers (Wu & Wang, 2012). Games are not often considered for their potential to affect humanitarian and social justice issues although such perspectives can increasingly be found through media outlets like *Forbes* and *The New York Times*. *Forbes* is certainly drawing attention to games of this sort and has a regular contributor, Jordan Shapiro, who, among other things, writes about game-based learning (Shapiro, 2014). Clive Thompson, a writer for *The New York Times* and *Wired*, covers technology broadly, and this coverage often entails video games (Thompson, 2006). Social justice and humanitarian games are an emerging genre with considerable potential within the domain of video games and education.

Game play itself is intimately connected to the social development of children and youth (Briggs, 1991; Caillois, 1958; Huizinga, 1949), and video games, though primarily considered entertainment now, emerged from more serious intentions. The edutainment movement made an overt attempt to combine the entertaining factor of games with educational purpose, with limited success (Brown, 2008; Bucklund, 2007; Jenson & de Castell, 2003; Squire & Jenkins, 2003; Susi, Johanesson, & Bucklund, 2007). Digital games were also used for various serious purposes such as illustrating scientific research studies as far back as 1951, training professionals particularly in the military field (from 1955) and conveying messages (1958) (Djaouti, Alvarez, Jessel, & Rampnoux, 2011). All of this was prior to *Atari's Pong* (Atari, 1971), a game for entertainment that brought video gaming into the mainstream. Following *Pong*, the first video game console, *Magnavox Odyssey* (Ralph Baer, 1972), came with games both for entertainment and educational purposes. The creator, quickly recognizing the potential of the console for serious applications, created gun related games for the military and police departments (Baer, 2005 as cited in Djaouti, et al., 2011). Since the inception of video games, they were used for military purposes and from the 1970s on, quite successfully at times, for both educational purposes (Oregon Trail, 1971) as well as healthcare (*Captain Novolin*, 1992, a game designed to teach children about the management of diabetes). The term serious game has itself existed for over five centuries, and serious digital games have existed since the fifties.

The serious game movement began more officially with the Serious Games Initiative (SGI) in 2002. This initiative covered many types of games but generally had very little to do with social change. Instead it focused more on bringing the tools of gaming to multiple corporate and professional sectors. This take on serious games was broad. It covered many different

domains, and was intent on partnering with organizations in to use games as a tool outside of entertainment. In 2004, two years after SGI began, a movement known as *Games for Change* took shape, with a focus on "social impact games that serve as critical tools in humanitarian and educational efforts." (About Games for Change | Games for Change, n.d.). Games for change is an emerging research domain (Dahya, 2008; Dasgupta, Tureski, Lenzi, Bindu & Nanda, 2012; Katsaliaki & Mustafee, 2012) within serious video game literature.

Social impact games (also known as *games for change*, *social justice games* or *persuasive games*) are a newer genre of video game that form a subset within the "serious game" category, which broadly includes games designed to meet goals other than entertainment, such as informing, persuading, or changing behavior (Dahya, 2008; Dasgupta, Tureski, Lenzi, Bindu & Nanda, 2012; Katsaliaki & Mustafee, 2012). This genre of video game gained broader recognition in 2005, when the game *Food Force* was created by the United Nations to teach players about the concept, process and challenges of food aid programs (Dahya, 2008). Another popular game, *Darfur is Dying*, was released by MTV shortly after; this game was made with the intention of raising awareness of the challenges faced by families in Darfur who have to, for example, forage for water without getting caught by the militia (Dahya, 2008; Thompson, 2006).

Some academics believe that games of this nature have the power to bring about social transformation (Bogost, 2007), and *Darfur is Dying* was played by over 700,000 people in the first month alone (Thompson, 2006), indicating the potential reach such games can have. As games and technological devices become increasingly ubiquitous, gaming is becoming a regular part of the lives of many people; due to their interactive nature and their capacity to engage the

attention of a diversity of people, incorporating them into the classroom activities seems wise in terms of actively engaging students[5].

Mia Consalvo (2003), a game-scholar at Concordia University, describes the work that games can do to create resistance by pushing against hegemonies:

> As markers of their times—the social, political, cultural and historical products that they are—digital games are well-positioned to allow insight into dominant ideologies as well as to provide the occasional space for challenging those ideologies. (p. 8)

Video games, can certainly play a similar role to other media such as film, works of art[6], novels, and poetry, with the capacity to disrupt, expose and challenge habitual ways of seeing and thinking. Video games in particular, hold great potential for engagement with counter-ideologies, given their interactive nature (Gee, 2003; Brown, 2008), and popularity (Kirriemuir & McFarlane, 2004; Brown, 2008), and they are increasingly used in this way. Designing social impact games with children and youth is one method for reflecting on social justice and humanitarian issues while also developing media-literacy skills. It is only through the actual design and development of media that we can really begin to question not only media production, but also the technological tools themselves. Richard (2005) calls for "the necessity of students and teachers to appropriate technological tools and to question the values concerning their use in a highly mediatized society" (p. 51). Media *production* is an important way for young people to

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[5] Note: The description in this paragraph was used for a conference proposal - Jackson, R. & Sheepy, E. (2015). Issues and opportunities in learning with social impact games. Conference: EdMedia: World Conference on Educational Media and Technology 2015, At Montreal.

[6] Since 2012, video games are officially considered by the United States Supreme Court to be works of art (The Art of Video Games, n.d.).

develop an understanding of media on a deep level (Jenkins, 2009), and to push back against hegemonic constraints imposed by mainstream media productions.

Though game design based media production projects have yet to be commonly integrated into classrooms (Salen, 2007; Flanagan, 2005), there are nevertheless many interesting projects and movements working towards goal. Global Kids in New York City is a group involving youth with video games and game-making. To "make local connections and create change through peer education, social action, digital media and service learning" (Global Kids | Home, n.d.), two of their programs involve video games. One program is based on playing games to develop global awareness and to think critically about games. The other is based on game creation where participants become ghost detectives and design games that take them on adventures around the city to libraries where they learn about local history and global issues. There is also an annual game-making competition in the United States of America. called the National STEM Video Game Challenge (National STEM Video Game Challenge, n.d.). Currently, most game-making research projects with children and youth are positioned to STEM (science, technology, engineering and math) subjects. For example, research projects are geared towards content related to computer programming (Pinkett, 2000; Salen, 2007; Wu & Wang, 2012), math (Kafai, 1995; Kafai, 2003; Ke, 2014), and science (Kafai, 2003), as opposed to using game-making as a means of learning about social justice issues. This is likely due to the increased pressure for students to succeed in STEM subjects in the United States (Tijerino, 2013), and Obama's coinciding "Educate to Innovate" campaign (Joan Ganz Cooney Center, 2010), in addition to increased attention to computer programming as a necessary literacy in schools. Several organizations support the integration of computer programming in schools. Actua, for example, is

a Canadian organization that received $1.5 million from Google to integrate computer programming with education in 2015 (Actua, n.d.), and Codecademy has already begun the process of integrating computer programming in schools in England (Learn to code, n.d.). Game-making and design related to education is becoming increasingly popular.

Collaborative Game Design

Social justice and humanitarian game design poses some ethical dilemmas similar to those brought on by social justice work and humanitarian aid. In the west we are becoming increasingly aware of the problematic nature of the paternalistic approach to working with countries where we cast ourselves as heroes when we attempt to help the other. For example, in 2015, Bob Geldoff re-created the Bandaid project from the 1980s to reflect the desire of western musicians to help the Ebola situation in West Africa. There has been a backlash on behalf of many people involved in related humanitarian aid who wonder how the same approach from the 1980s continues to be applied today, when the idea of helping the helpless is an outdated perspective that is a complete misperception of the reality of the situation (Gibson, 2014). During the ebola crisis, West Africa certainly needed extra support on the ground, just as any country would when faced with such a crisis, but they are not helpless and without resources within the context of their own country.

Similarly, video games created for social justice and humanitarian purposes can be equally disconcerting. The Half the Sky Movement (Mobile Games: Reaching the Hardest to Reach, n.d.) uses media in various ways to address global humanitarian issues, including through social impact video games. In a video highlighting the potential of what they refer to as “the humanitarian video game revolution” (Mobile Games: Reaching the Hardest to Reach,n.d.),

teams of white men in the United Kingdom and New York, brought their games designed to address issues concerning girls and womens' oppression to Kenya to be pilot tested. The movement is framed on the website as a "partnership between the people who make them, and the people who play them" (Mobile Games: Reaching the Hardest to Reach, n.d.), but the games being created in the studios in the United Kingdom and New York, are brought in situ to the places they were designed for to see how they are responded to in context. Although it cannot be denied that this project is not without potential merit, the prototype approach to game-making is typical of game-making efforts (Nancy Drew, personal communication, November 25, 2014). Yet this is not an entirely appropriate approach when it comes to games made for humanitarian or social justice purposes. In contrast with these well-intentioned yet paternalistic approaches, there are alternative ways of engaging that are more holistic and collaborative. From Dewey's (1990/1900) perspective:

> Helping others, instead of being a form of charity which impoverishes the recipient, is simply an aid in setting free the powers and furthering the impulse of the one helped. A spirit of free communication, of interchange of ideas, suggestions, results, both successes and failures of previous experiences, becomes the dominating note of the recitation. So far as emulation enters in, it is in the comparison of individuals, not with regard to the quantity of the information personally absorbed, but with reference to the quality of work done - the genuine community standard of value. (p. 16)

Both Freire and Dewey stress the importance collaboration through exchange rather than by one party imposing ideas on others (Dewey, 1990/1900; Freire, 1968/2008).

Other game-making projects have considered the work from this idea of transformative

exchange to both students and their teacher. In a study by Kafai et. al., (1998), game design was used as a tool to help both students and teachers re-examine their mathematical thinking processes, calling upon the construction of games as a means of problematizing their thinking. Drawing from Hiebert et al. (1996), they frame problematizing as a means "to wonder why things are, to inquire, to search for solutions and resolve incongruities" (p. 150), in math. Such problematization would well suited to social justice issues like poverty, racism, environmental rights, and sexism which are highly complex issues that are important to talk and learn about from various perspectives. Similarly, Jonassen and Carr (2000) call for students and teachers to work together to explore the use of technology as tools for knowledge construction rather than knowledge transmission from teacher to student. A game design approach to learning centres around this idea because students necessarily have to engage in processes of interpretation, analysis, synthesis, and organization of knowledge (Hwang, Hung, & Chen, 2014). This approach fits directly into a progressive education framework and resonates with affinity spaces (Gee, 2005), where, contrary to classroom spaces, "everyone shares interests and knowledge (extensive) while each person has his/her intensive knowledge to add as potential resources for others." (p. 230). Learning situations where adults and youth work together in a potentially transformative exchange is both a great example of a progressive classroom as well as an affinity space.

Progressive collaborative learning situations involving game design projects where multiple perspectives come together with students are not common. One Flemish study applied a "user-centered design method" for a game-making project aimed at creating a location based mobile game in support of road safety, targeted at youth (Beg, Van Looy & All, 2014). The

project brought multiple stakeholders together throughout the game development process to gather insight related to the game. The game was built in collaboration with game-designers, youth (target audience), and road safety experts. A prototype was created and then play-tested by all participants (Beg, Looy & All, 2014).

Another example of a collaborative game design based research project that involves an alternative approach to game design involves Jenson and Muehrer (2013) who created a game called *Compareware* targeted at children ages five to eight. The game emerged from a three year study looking at multimodal, multilingual education in elementary schools in Toronto where they realized children had difficulty mobilizing vocabulary and analytical skills needed to describe similarities more so than differences in images. From this work they developed the game, and then pilot tested it with children. In one sense this project followed a more typical game design model in terms of doing research with the target audience to inform the game, creating the game, and then pilot testing with the target audience. However, engagement with the participants was long term and in-depth, and based on the needs of the target audience discovered through the process of working closely with them.

Finally, the following two examples have some direct details in common with the AoW project. *The Rapunsel* project (Flanagan, 2005; Flanagan & Nissenbaum, 2007; Flanagan, Nissenbaum & Howe, 2007) also involved female participants in grade seven who played a consultant type role and were consistent contributors to the project. The research goal was to establish a successful game that teaches programming specifically for middle-school age girls. Activism and careful consideration of the values embedded in the game design were central to the research. A movement called MAGICAL (Making Games in Collaboration for Learning)

mobilized collaborative digital game-making (CDGM) projects in schools in five European cities. This movement is based on a learner-centered approach where students learn by doing, creating digital games for their peers and extended community (MAGICAL, 2014). The project goal is to support evidence based research related to how game-making could be adopted for "activating and sustaining transversal skills such as collaboration, creativity, problem-solving and Information and Computer Technology literacy" (p. 8) and in support of teacher training and development of related classroom practice particularly at the elementary level. MAGICAL calls for research that supports teachers in the goal of bringing game design opportunities to classrooms.

Game design based learning. Seymour Papert (1980, 1993; Kafai & Resnick, 1996) pioneered the idea of video game design and creation primarily for learning math, (Kafai & Peppler, 2007; Kafai, Franke, Ching & Shih, 1998; Ke, 2014) science, (Hwang, Hung & Chen, 2013;) and programming (Kafai, Peppler, 2007; Wu & Wang, 2012;). More recent research is beginning to look at game design and higher-order thinking skills like problem-solving (Akcaoglu, Koehler, 2014; Hwang, Hung & Chen, 2013; MAGICAL, 2014). Further research is also called for regarding the complex interaction between design-thinking and knowledge development (Ke, 2014). In addition, there is an entire school dedicated to the integration of games and learning in New York City called Quest to Learn (Salen, Torres, Wolozin, Rufo-Tepper & Shapiro, 2011). Empirical research in game design based learning has been slow to emerge (Akcaoglu & Koehler, 2014), and game design used as a collaborative learning tool within the context of progressive learning or affinity spaces around themes of social justice remains an unexplored area within the game design based learning literature.

Past research projects involving game design based learning were limited in complexity and visual quality because they involved children programming or planning very simple games on their own or in small groups (Kafai, 2000; Ke, 2013; Kafai, Franke, Ching, & Shih, 1998; Hwang, Hung & Chen, 2014; Arnez, Pace & Sung, 2014), as opposed to through collaboration with a game design professional and interns to create games more on the level of what they were used to actually playing. The design-based learning literature also highlights the fact that young learners are able only to achieve a low-level of sophistication or content integration in the design of their games (Ke, 2014). Katie Salen (2007), discusses the importance of a design-based pedagogy in game-making, given that most game-making software is based on pedagogy from a computer programming perspective where practice and thinking about game design is secondary. This situation was partially the catalyst for *Gamestar Mechanic*, a game where players learn to create games, for which Salen was the lead designer. This game is about game-making from the perspective of game design thinking and practice modelled and performed throughout game-play (Salen, 2007). Indeed, with the incoming wave of programming literacy curricula being implemented in schools (Mitton, 2015), we can be certain that the focus on programming will continue to dominate at the expense of design literacy. Design literacy plays an important role in the understanding of new media literacy.

The importance of design based pedagogy was also highlighted at a recent conference funded by the Status of Women Canada about the issue of cyberviolence. Data gathered from fifteen interviews from the game design industry, thirteen from community organizations, one hundred and forty college students and a video documentary video made by six – ten youth about the issue directly indicated a need for deeper attention to media literacy strategies particularly

related to media production, as one strategy for dealing with the very complex issue of cyberviolence in Canada (Dixon, Weber, & Craven, 2015). Two quotes from participants stood out regarding design based learning and new-media literacy. The first relates directly to the importance of intentional design: "We need to teach that there are inherent values in design, we need to design with intentionality." (Female independent game designer) (Dixon, Weber, & Craven, 2015). The second a call for a shift in media literacy teaching and learning where it was suggested that we "change the ways in which we teach digital media literacy. Young people are producers of content and the content they create shapes social norms. We need to teach them to be reflective, ethical producers of content" (Video game scholar) (Dixon, Weber, & Craven, 2015). Design opportunities play an important role in the way students understand their media surroundings, as well as the ways in which students can contribute to media based surroundings. Understanding the power of media and communication and developing a reflective ethical relationship with media in terms of both consumption and production is key to supporting education that is humanizing rather than oppressive as described by Freire (1968/2008).

Professional game designers describe collaboration as being key to the creation of the best games and to the best game design experiences, while also indicating that the worst disasters can take place when collaboration becomes challenging (Falstein & Fox, 1997). Some processes briefly gleaned from the perspective of a game designer, entail the following: well defined roles, mutual respect, shared vision, complementary strengths, good processes, listen to your inner voice (Falstein & Fox, 1997). More recently, research in the game design industry reflects suggestions for game design tools to replace game design documents as a collaborative game creation strategy (Djaouti, 2013). Elsewhere, collaborative games are recommended for

classroom use to develop the skills required to work collaboratively (Wendel1, Gutjahr, Gobel & Steinmetz, 2012; Peppler, Danish & Phelps, 2013), and collaborative game design itself is more recently being touted as a method for developing collaboration skills (Flynn, 2014).

This account of gender and video games, social impact games as a genre within the serious games category, and game-design as it relates to education, reveals the broader relevance of opportunities for girls to engage with technology and video games, particularly within all girls spaces. Social impact games and learning is not a widely researched video game category and game design and design education in general is important to media-literacy, yet is not generally receiving adequate attention in schools.

Chapter 4

Theoretical Framework

I will begin this chapter with a conceptual description of energizing moments, a reflective research tool I developed during data analysis. Energizing moments as a reflective learning tool applied in order to identify moments when the participants were most engaged, supports Dewey's expectation that educators be reflective individuals in charge of working *with* learners to create engaging experiential learning opportunities in constructivist learning environments. Similarly, the concept supports Freire's expectation that people, including teachers, reflect and act upon the world. Energizing moments was a tool used to identify and draw attention to the moments when participants were most deeply engaged and excited by the project related work. This tool therefore acts as a means of registering "success" from a student/participant-centred perspective, when success is delineated by energy related to the degree of engagement and motivation of the students themselves.

I am also looking at AoW as a progressive learning environment informed by the idea of nurturing affinity spaces. As mentioned in chapter 2, nurturing affinity spaces are a great example of the type of learning environment that both Dewey and Freire would approve. In this chapter I will describe and define *nurturing* affinity spaces and Dewey's thoughts about how learning happens through experience. I will dig into Gee's deeper theoretical explanation of semiotic social spaces of which nurturing affinity spaces are a specific example. The theoretical description of semiotic social spaces reveals how affinity spaces are exemplary progressive learning environments in relation to Freire's ideas of praxis and transformation. Once I establish nurturing affinity spaces as ideal examples of contemporary progressive learning environments

through Dewey and Freire, it will follow that the fourteen qualities of nurturing affinity spaces can be applied to evaluate the strength and integrity of the AoW project as a progressive learning environment.

A Conceptual Description of Energizing Moments

Energizing moments were acute periods of time during AoW when all or most of the participants involved in a project-related event were motivated and engaged. These events were poignant, the energy palpable. This project involved many challenges. The energizing moments were key to sustaining engagement with the project over time.

Many aspects of the project outside of the energizing moments were exciting in different ways. For example, the initial planning phase of two months leading up to the first visit with the grade seven participants (on November 14, 2014) was inspiring and exciting for the undergraduate student interns, the CEO, and myself, but this excitement was more or less evenly spread over time. Energizing moments are more acute. The most powerful of these energizing moments took place when everyone, or most participants involved in the moment, were inspired and energized simultaneously. These moments came to be identified as moments throughout the project where inspiration and excitement were overtly demonstrated, particularly by the youngest participants (excitement manifests less obviously with adults). Energizing moments are characterized primarily by the younger participants through:

- A lot of chatter related to the project or task.
- Overlapping conversations and idea sharing.
- Talk fast (tf).
- Increased pitch (p).
- Playful banter (this happened when participants were playful and at times non-sensical in their talk - often repeating things).
- Laughter.

- Literal verbalization of excitement (“I’m excited!”)

Energizing moments are characterized primarily by the older participants through:

- Literal verbalization of excitement (“I’m excited!”).
- Expressions of awe and related comments (“Wow!”, “That’s amazing!” “Too cool!”).
- Hand-clapping.
- Laughter.

Where more of these characterizations are present, the energizing moment is more powerful. These details provide one approach to identifying strategies within the context of the project, and perhaps even also beyond the confines of the project, towards both the creation and assessment of motivation and engagement within student-centred learning environments or learning environments that aspire to be student-centred.

Affinity Spaces

Affinity spaces are powerful examples of contemporary progressive learning spaces. Through affinity spaces, Gee (2005) argues:

> Learning becomes both a personal and unique trajectory through a complex space of opportunities (i.e., a person’s own unique movement through various affinity spaces over time) and a social journey as one shares aspects of that trajectory with others (who may be very different from oneself and inhabit otherwise quite different spaces) for a shorter or longer period before moving on. (p. 231)

Progressive education is situated in a constructivist perspective where the understanding is that learners build their own knowledge through experience. Dewey (1938/1998; 1934) considers experience as something that happens as we interact with the environment physically and socially. From Dewey’s perspective, as human beings, we let the world into our internal

galaxy through our senses as we experience the world in the present. These experiences mix with the past and inform the future. As new experiences enter into us they shift our understanding around, combining and recombining with elements of past experience. New constellations form. New debris floats about. We are ever changing in response to active engagement with our environment. Gee's description of affinity spaces as complex spaces of opportunities through which we journey, resonates with Dewey's description of experience. In Gee's description we move freely through various environments and engage with others in knowledge exchange. This freedom is something Dewey supported. He was concerned with the quality of our experiences in classrooms. What he meant by this essentially was that students require freedom to make their own decisions. Traditional educational environments provide students with experience, but these experiences are damaging. Memorization and automatic drills do not engage students, nor support them in the development of their own thoughts. Quality experience means that students have the freedom to make decisions, they are engaged by experiences, they are learning to think on a deeper level through these experiences, and they are interested in continuing to learn. In affinity spaces, students are free to move and share at their own pace as they move from one experience to the next.

Affinity spaces are collaborative learning spaces. People come together, of their own volition to contribute, learn and grow based on a shared interest. Gee (2005) re-casts the idea of communities of practice through affinity spaces as a means of overcoming some of the limiting aspects of this framing. Communities of practice are based on the notion of membership. Gee argues that this places a binary constraint on participation. You are either a member or not a member. He argues that conceiving of a structure of apprenticeship creates unnecessary

boundaries and complications from the get-go. Gee replaces the idea of community with space, where people can enter and exit of their own accord. One can look at the way learning takes place collaboratively, within and related to a space, rather than dealing with the complications of membership where membership then becomes something that has to be restricted by definition.

Traditionally education has been organized based on the idea of learning happening in developmental stages loosely synchronized with age (Piaget & Inhelder 1969/2000). This is a useful perspective or tool, but it is not the only perspective through which to consider learning. Working with people from varied backgrounds and communities who vary in age and experience is an ideal way to contribute to potentially rich learning experiences. If we refer again to Dewey's framing of experience, the right kind of experience involves engaging with a plurality of others in meaningful ways so that our internal galaxy continues to actively evolve in these experiences. Dewey supports the idea of children engaging with a wide variety of members of the local community, and of also visiting many different types of places. Affinity spaces are not segregated. Everyone shares a common space. Leadership is also porous, so children and youth alike can be in a position where they are leading others.

Semiotic Social Spaces

Affinity spaces are a specific type of what Gee refers to more broadly as "semiotic social spaces". A description of semiotic social spaces reveals how affinity spaces are constantly evolving based on Friere's idea of praxis, "reflection and action upon the world in order to transform it." (Freire, 1968/2008, p. 87). Semiotic social spaces are composed of generators, portals, signs, internal grammar, and external grammar. The generator contains the signs that make up the content of the semiotic social space. An example of a generator could be a video

game genre like role- playing games, a specific video game, a textbook, or a film, to name a few examples. The generator produces the signs that form the content of a game (for example), as well as signs that are produced by individual and social practices around the game. The portal provides access to the signs, and the opportunity to interact with the signs. An example of a portal would be the controller one uses to play a game. Examples of the signs within a video game would be characters, objects, colours, storylines, and the goal of the game. These are considered internal signs, and are referred to collectively as the internal grammar of the game. Websites created by fans of the game, cheat code books, fan fiction based on the game, and reviews of the game are examples of signs that take place external to the game, and are often made by players of the game. Collectively these external signs are referred to as the external grammar of the game. The internal grammar is the content produced by the game designers. The external grammar is produced as the content interacts with the game players and fans. The decisions of designers and producers are effected by the external grammar produced through interaction with the game. New versions of games are often based on external grammar, and at times even the versions themselves are altered through patches, based on feedback and input from players. The external grammar of a game is shaped by interactions with the game through play, review, design and production. As Gee puts it, "this ongoing social interaction determines the changing universe of the possible and emergent routine ways in which people can think about, value, act and interact around real-time strategy games in general and Age of Myth in particular." (Gee, p. 220).

If one were to replace game designers with teachers and game players with students within this semiotic social space the students would contribute to the external grammar and

notions from external grammar would make it back into the internal grammar. There would be a feedback system involving the teacher as a facilitator and the participation of the students directly in content or sign production. Students could have a direct effect on content and their responses would contribute to the evolution of the generator of the content. This is an example of praxis where student reflection and action within the classroom leads to the ongoing transformation of signs. The locus of control would be shared by the teacher and students. In a more traditional transmission based classroom, the game or lesson plan as a generator of signs would only change if the teacher decided to change it. Some teachers are more sensitive to student needs than others, and may make adjustments based on observation, but the classroom structure, resources, and lesson plans would not typically involve direct participation and input from the students in a traditional classroom.

Depending on the form of the portal, it can be a place where people gain access to the production of signs, thus also making it a generator. A game can be a portal, as can strategy guides, official websites and fan websites. A portal is a generator when people are able to manipulate or effect the signs. The video game *Little Big Planet* (Media Molecule) for example has a creator setting where the player can create their own levels within the game, and publish them for use by other players. *Little Big Planet Central* is an online space where people can find interviews with popular creators who share thoughts about their creative processes for use by others. A classroom can be considered from this perspective as well. Within a classroom, a textbook provides access to a sign system. A textbook is a portal however the signs within the textbook (typically) cannot be altered by the participants (though graffiti is an example of how they could). In a small group discussion on the other hand students can share opinions, contest

opinions and reconfigure their thoughts based on what other students have to say. A group discussion is therefore both a portal and a generator.

Semiotic social spaces as transformational learning spaces. There is a parallel here between what Gee has outlined within the contemporary context of affinity spaces, and Paulo Freire's (1960) ideas about transformation education and praxis. Freire explains that traditional classrooms where the teacher transmits knowledge to students is oppressive because students learn to passively receive information and therefore learn to live passively in the world. Within traditional educational contexts, knowledge moves mainly in one direction from the teacher to the students, and the locus of control is entirely with the teacher. Education involving praxis on the other hand, is considered to be humanizing as students are learning to actively engage with the world and to think for themselves. Within this context, knowledge moves in multiple directions, between peers, students and the teacher, people outside of the classroom, and through interaction with resources like books and films. Similarly, in affinity spaces, knowledge moves in multiple directions as participants learn from one another. In an affinity space, some portals are generators and internal grammar is transformed by external grammar. This means that in a classroom environment, the students would be contributing to the learning space in a profound way. In a classroom as an affinity space, the work of the students would contribute to the actual learning environment. An example of this could be where a student creates a graphic novel about an event in history. It is placed on the shelf for other students to read. A sculpture made by a student becomes a prop for a still life set up by another student. In addition, their ideas about how the classroom should work and be set up would actually affect the way the classroom worked and was set up. For example, a group of students may decide that they want a local artist to come and

speak about their work because they want to create something similar for the school. Or they decide that tables should be rearranged or that they should dedicate a corner of the classroom to growing plants from seed. These are the types of activities that took place at Dewey's laboratory school at the University of Chicago. A classroom where students have an effect on content where they contribute to learning everyday is at its core transformative. Affinity spaces are powerful examples of progressive learning environments.

Nurturing Affinity Space Features

Gee and Hayes' framing of nurturing affinity spaces (2012) provides a more nuanced example of affinity spaces that are particularly encouraging learning environments. Where affinity spaces have eleven identifying features, Gee and Hayes describe fourteen features of nurturing affinity spaces, where encouragement is implied through the three additional features[7]:

1. Common endeavour is primary (versus race, class, gender, disability).
2. Affinity spaces are not segregated by age.
3. Newbies, masters and everyone share a common space.
4. Everyone can, if they wish, produce and not just consume. Some portals are strong generators.
5. Content is transformed by interaction. Internal grammar is transformed by external**.**
6. The development of both specialist and general knowledge are encouraged and specialist knowledge is pooled.
7. Both individual and distributed knowledge are encouraged.
8. Tacit knowledge is used and honoured.

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[7] The additional features are the final three that are bolded; In #4 & #5 the second sentences show the language used to describe affinity spaces in relationship with semiotic social spaces as outlined by Gee (2005).

9. Many different forms and routes to participation.
10. Many different routes to status.
11. Leadership is porous and leaders are resources.
12. **Roles are reciprocal.**
13. **A view of learning that is individually proactive, but does not exclude help, is encouraged.**
14. **People get encouragement from an audience and feedback from peers though everyone plays both roles at different times.**

Gee and Hayes clarify that any semiotic social space "that has more of these features than another, is more of an affinity space or closer to being a paradigmatic affinity space" (p. 225).

Given that nurturing affinity spaces are exemplary progressive learning environments, the fourteen features of nurturing affinity spaces can be used to provide evidence of the strength and integrity of a progressive learning space. Given the complex nature of progressive learning spaces, the fourteen features of an affinity space are not simply to be treated as items on a checklist. I used nurturing affinity spaces as a tool to help me reflect about the strength and integrity of the AoW project as a progressive learning space that relates to the type of space youth participate online because they want to. These reflections are written with the intention of applying what I learned to the next iteration of the project. Energizing moments is a reflective research tool I derived from the data gathered from the project, and applied to locate and describe key active learning moments within the project. From these key moments, I developed strategies towards enabling such active learning moments in the future iterations of the project.

Chapter 5

Methodology

In this chapter, I will describe and justify ethnography as my research methodology of choice, and revisit the research questions. Following this I will contextualize the project through descriptions of the research according to the section headings: *My Participation in the Research Project; The Research Locales; Sample Selection and Size; Data Collection; The AoW Project Description.* I will end the chapter with a description of the video game prototype.

Ethnography

This research is a case-study and pilot project I investigated as an ethnographic researcher. Participant observation is an ethnographic research strategy that is typically applied to the study of cultures, often taking place over a long period of time to develop a deep understanding of a particular culture (Spradely, 1980; Atkinson & Hammersley, 1994; Kawulich, 2005). In the domain of education, this approach has been used to study classroom contexts (Watson-Gegeo, 1997; Jackson, 1990b). This method was applied to AoW. Ethnography is often used to explore the nature of a particular phenomenon (Atkinson & Hammersley, 1994). Upon collection, ethnographic "analysis of data involves explicit interpretation of the meaning and functions of human actions, the product of which mainly takes the form of verbal descriptions and explanations." (Atkinson & Hammersley, 1994 pg. 248). Atkinson and Hammersley (1994) consider participant observation to be a "mode of being in the world", that is humanistic and interpretive in approach. Because we are part of the social world, all social research is by its very nature, participant observation.

In Dewey's laboratory school at the University of Chicago (Jackson, 1990a; Dewey, 1902), teachers were expected to experiment with lesson ideas and pedagogy and where they reflected extensively about their teaching practice both individually and collectively. The teachers were also participant observers in their own teaching practice. The AoW project was experimental and it involved a high degree of reflection on behalf of the Montréal team in particular, as we tried out ideas and overcame challenges. As a researcher, my reflections about the project are ongoing. The laboratory school was also a place where student-teachers watched and learned from teachers and would practice teach and receive feedback from others. Of the laboratory school, Dewey said "We do not expect to have other schools literally imitate what we do. A working model is not something to be copied; it is to afford a demonstration of the feasibility of the principle and of the methods which make it feasible." (Dewey, 1902 p. 94). The AoW project should be considered from this same perspective, as a working model to inform future working models. Recommendations will be drawn from this case-study and pilot project but these recommendations are not rigid. What I imagine happening is that the project becomes an ongoing experiment and that it evolves in various ways over time.

Research Questions

As mentioned in the introduction, the research element of this project began with an inquiry: what does this project have to offer as a learning opportunity? My ongoing reflections in the project led to two broad questions: If this project itself were considered as a prototype, how could it be improved? In what ways can we tailor future iterations of the project to leverage the impact of the project on all participants involved? These broader questions eventually led me to want to consider nurturing affinity spaces and to take a closer look at the most powerful

highlights during the project which I came to refer to as energizing moments. The following specific questions related to each of these concepts:

1. Looking at the project through the lens of affinity spaces what suggestions can be made for improvement?
2. Considering energizing moments, what motivated the participants and maintained their interests?
3. What deflated motivation and interest?
4. Based on these analyses, what are guidelines that could support future projects?

My Participation in the Research Project

The project took place in Toronto and Montréal between September of 2014 and December of 2015. My participation manifested in various ways. I was the liaison between the school we were working with in Toronto and the rest of the team situated in Montréal. I was the art teacher at the school in Toronto for three years from the Fall of 2004 to the end of the school year in 2007. The team in Montréal consisted of a CEO of a small start-up gaming company and the five undergraduate student interns from Concordia University and McGill University. This placed me in the position of the main communicator and liaison between the groups of participants. As mentioned in the introduction, leading up to AoW was another research project entitled: *The Impact of a Serious Mobile Video Game for Social Change on Girls' Perceptions, Attitudes and Behaviours Towards Global Water Issues and Education.* This project took place at the same school, with the same group of girls in the spring of 2014, when they were in grade six. I was the primary investigator for the project where I spent three weeks as a researcher in residence at the school. During this time I sat in on classes and got to know the girls while

reacquainting myself with the school before inviting the participants to play, test, and respond to the game *Get Water!*. AoW grew out of this project because the participants expressed a high degree of interest in game design details.

Accessing students in schools for research projects and collaborations can be a challenge without an established relationship. My past relationship with the school made the logistics of a research partnership easy. Finding a partnering teacher was also not a challenge, given my close relationship and symbiosis with my former colleague. This teacher was the homeroom teacher of the students when they were in grade six, and their computers teacher in grade seven. Though my physical distance from the school was not ideal, my history with the school supported a certain depth of understanding of context, which was important from an ethnographic research perspective. This depth of understanding informed my reflections and analyses. Given the school's feminist mandate and the reflective capacity of the students themselves, this was also an ideal population to guide a game design project about leadership from a feminist perspective. This school was also highly supportive of any effort to connect girls with technology and to an industry that is dominated by men.

The Research Locales

Montréal

Four of the five undergraduate student interns attended Concordia University and one attended McGill University. I am an art educator and doctoral candidate in the Department of Education at Concordia University and Nancy Drew is an engineer and was the former CEO and founder of a small startup gaming company. AoW project meetings took place weekly throughout the project for one and a half hours at the Technoculture, Art and Games (TAG) lab,

the Mlab, and the Department of Education at Concordia University.

Toronto

The research site in Toronto was a grade one through twelve, all girls feminist school. As far as private schools go, this school is at the lower end of the tuition scale, and the teachers are paid less than other teachers at private schools in the area and less than the public district school board. The school mandate required that a feminist perspective be represented through all subject area curricula. The ongoing degree of awareness towards issues relating to girls and women at the school was obvious during the first hour of my research residency prior to the AoW project. At this time I overheard a group of high school students debating Miley Cyrus's version of feminism in her performance with Robin Thicke on the MTV Video Music Awards. (Miley Cyrus & Robin Thicke MTV VMA Awards, 2013). Their inquiry revolved around whether or not Cyrus was a strong woman or objectifying herself. Generally, they were frustrated by how confusing the issue was. The general consensus was that Thicke's song was sexist and degrading to women, and even encouraged rape so she was acting as a sexual object in this context (Fieldnotes, April 14, 2014). Such discussions occur regularly at this school. The interpretation of feminism at the school runs deeper than discussion of depictions of women. Care and attention related to social justice and humanitarian issues take up a large amount of attention within the general consciousness of the school community. During my three years as a teacher there, throughout the winter, all grade levels took turns to prepare lunch at a local homeless shelter. During my more recent residency, the grade twelve students shared slides from their trip to a country in South America where they helped build hiking trails for safer hiking, brought supplies to researcher in the field, and built shelters (Fieldnotes, April 2014). During the winter of 2014 there was a shoe-

box drive spearheaded by a grade 11 student, to collect toiletries and personal items to send to women's shelters across the country (School newsletter: dec 12, 2014).

Community building is also important at this school. There is a weekly tradition that has been in place since the school's inauguration called Allschool. This is a period set aside once a week for the entire school to come together as a community. Students are divided into twelve families named after powerful female figures from world history or mythology. Allschool enables grade levels to mix together and provides opportunities for contact between teachers and students who may not actually work together during the regular school day. Allschool presents the opportunity for a variety of activities. Families are expected to sit together and are often called upon to work together to achieve a goal. These events can be led by families, grade levels, or extra-curricular clubs. While I was in residence at the school for example, the environmental club led a neighbourhood clean-up. Yan Martell spoke to the students about his book *The Life of Pi*, and his feelings about the screenplay and film adaptation of the book and a film about gender was screened (Jackson, R. Fieldnotes, April 2014). Other deeper initiatives take place over several months. For example, the Allschool theme Breaking the Silence revolved around the Montréal Massacre[8]. Families had the chance to reflect about the theme of "breaking the silence" together and why and how it is important to create opportunities for change. This was followed by collaborative poetry writing based on the theme. The poetry produced was shared with the school community and was also displayed at the school's annual winter holiday event. In addition, the community gathered donations for the YWCA's December 6th fund (2014), which helps provide loans for women fleeing abuse (School newsletter: Dec 12, 2014).

[8] This was a shooting on Dec. 6th, 1989 at The University of Montréal's engineering school "L'école Polytechnique". The assailant was a male engineering students who purposely targeted his female peers at the school.

During my time as a teacher at the school (2004 – 2007), I came to realize that a feminist perspective in general permeated the environment through the curriculum, the teachers, the parents and the students. The school tended to attract a certain type of teacher who tended to prioritize feminism, smaller classes, a deeper connection with students, and generally a left-leaning perspective. Such dynamics changed depending on particular configurations of teachers and students. Since my time there, working with the founders of the school as the principals, the principal configuration itself shifted four times. The overall atmosphere of any school is deeply affected by the perspective of the principal, however private schools also typically have a board of trustees in place to ensure school mandates remain in check.

Sample Selection and Size

The AoW Montréal participants. The project involved five undergraduate student interns in Montréal. The first two interns were involved throughout the longest phase of the project which roughly spanned two university semesters. These two interns came to the project because they had expressed an interest to Nancy Drew in participating in a project related to game-making and gender. Hermione Granger was a cognitive science and gender studies student. She was responsible for prototype programming and researching educational models. Clementine was a communications student. She was responsible for educational content and concepts. Both interns worked closely on every aspect of the project however Clementine was not involved directly in the programming of the game. These two interns were joined by two art interns, TankGirl, and Mabel Pines, both visual arts students at Concordia, following an initial workshop where the game-concept ideas were gathered from the grade seven participants. TankGirl worked with Nancy Drew on a different game and was approached with the opportunity

by Nancy Drew. Mable Pines was recruited by TankGirl because they were friends and shared an interest in art related to game design. The art interns joined our regular meetings as of February 5th, 2015. The first meeting they attended was an extensive meeting where the entire Montréal team vetted game concept ideas described by the grade seven students through game concept sheets and recordings of verbal descriptions. The art interns created art assets and potential visual concepts and characters for the game based on the conclusions drawn from this meeting.

Phase One of the project lasted from September 16th, 2014 to April 29th 2015. During this time regular meetings took place in Montreal for one and a half hours per week, between the Montréal based team. At times we had short-term help from additional interns. One of whom for example, created a video about each of the Montréal participants to share with the grade seven students. The original AoW interns, Hermione Granger and Clementine had supervisors from their programs and received course credit for their work. The two visual arts interns were volunteering for the experience. This phase ended with the conclusion of the school year on April 29th, 2015, and was followed by Phase Two in May, where one of the art interns, TankGirl continued to participate, and was joined by a new intern, Lisa Simpson. Lisa Simpson was an undergraduate students in computational arts at Concordia University, and was working on a bachelor of computer science. She had some background experience in programming, but had never created a video game prior to this project. The first prototype of the game was created by Hermione Granger during Phase One, to complete her course credit. This prototype was not shared with the grade seven participants. The final prototype was created by Lisa Simpson and

TankGirl with support from Captain Holt, a temporary intern who participated in a game jam[9] that led to the final format of the game. Lisa Simpson and Tank girl worked throughout the summer of 2015 and into the fall semester. The prototype was presented to the now grade eight students in early December 2015. Funding was secured for the Phase Two internships.

The AoW Toronto participants. A sample size of fifteen grade seven students and five undergraduates was ideal for building a game and conducting qualitative research. The grade seven participants are known in this dissertation by their pseudonyms of choice: Sid, Beth, Ai'groeg, L.N., L.A., abieber21, S, Rosa, Midie (2 students who worked together), Toriel, Darzi-Bearz, Shezza, Sobrien, and Nevie Bear. Consent forms were signed by the parents, and assent forms were signed by the students prior to our first meeting with them. Approval was also given by the principal and their computers teacher. When I visited the grade seven participants again for the final focus group, I resubmitted consent and assent forms to be signed again by parents and students because it had been over a year since the initial meeting. Two of the class of seventeen grade seven students opted not to participate in the project, leaving fifteen participants and one new student who was present only for the final focus group.

The idea behind he AoW project was for the grade seven participants to be in charge of the main ideas and concepts behind the game. Thirteen (four participants worked in pairs) initial game concept sheets from the grade seven participants were mined for common themes and moods by the Montréal based team of interns. Working with a small group was important to engage all the participants in the game design process without being completely overwhelmed by

[9] A game jam is an intensive game making session that typically takes place over a weekend or 2 - 3 days. During this time a team of people, typically with various skills as programmers, artists, writers etc…. collaborate to come up with a game concept and prototype. In the case of AoW, the idea was to come up with three different game concept presentations to share with Nancy Drew and myself, and to collectively choose the direction of the final prototype of the AoW game.

ideas. Looking closely at the merits of the case-study and pilot project as a twenty- first century learning opportunity through participant observation required an intimacy with the project and detailed reflection conducive to a smaller sample size.

The grade seven participants were a convenience sample of fifteen. A convenience sample means that they were chosen because I was able to work with them easily, given my history with the school. Ten of the fifteen girls were participants in a game based research project that inspired AoW. This same group of ten participants (five joined the class in grade seven, and one new student participated only in the final visit), expressed an interest in the game design details, and had interesting ideas for how they would change the game to make it more meaningful. Motivated by this interest, and because Nancy Drew and I are all too aware of the need for women in the gaming industry decided to create a game design opportunity with the same group of girls. Based on this initial research project I was also curious to see if the general response to video games by this group of girls, as "a waste of time" (*Get Water!* Questionnaire #1, April, 2014) would be reconsidered after working on the design and development of a social justice game. The group of girls were also called upon as experts for their age to create a game to address gender issues related to leadership. This topic was chosen by Hermione Granger and Clementine after conducting literature reviews. The intention was for the grade seven participants to be the creative directors in charge of the main ideas behind the game and final approval of the prototype.

Through both grade six and seven, this group of participants stood out for their capacity to reflect and consider issues on a deep level compared to most students their age (Fieldnotes, April 2014; Fieldnotes, November 2015). During my initial time with them in grade six from

April 14th, through to May 5th, 2014 I observed their critical-thinking skills. I was impressed upon first meeting them as grade sixes when their teacher invited them to introduce themselves to me and to share a bit about the kinds of video games they play. One of the girls explained that her game play habits depended on who she was playing with. She played *Duke Nukem* with her older male cousins, and various games geared towards younger players if she was with her friends. I found her attention to context impressive. When I explained at this time that I could not tell them about the game that we were going to play, one of them made the connection that such details may bias their view of the game. Their homeroom teacher had been working with grade sixes at this school for ten years and also recognized them as particularly nuanced thinkers for their age.

Media literacy in terms of learning to think critically about media consumption was regularly addressed in class, particularly during language arts class, where, for example, I witnessed discussions about implicit and explicit advertising, and the consumer capitalist role advertising typically plays, recognizing that it also can be used to inform the public through service announcements. This led up to the analysis of poems and music with anti-consumer messages, including the lyrics to Lorde's song "Royals". This was followed by a writing exercise where the students were asked to write descriptions of the experience of doing and experiencing or being rather than consuming, following which they were invited to share if they wanted. Most students shared, but most also voiced that they thought their ideas were silly. At the end the session the teacher explained that they were going to work on building up their comfort sharing ideas. The teacher constantly provided students with choices and also developed lessons that were responsive to their needs and behaviours. This teacher's pedagogical approach involved students in their own learning and therefore falls more on the constructivist end of the spectrum.

It is important to take an opportunity to share some of the media related habits of this group of students. Generally speaking, most of them had Instagram accounts, but otherwise they were not producing and sharing digital creative work in online environments. In a questionnaire filled in by fourteen of the fifteen participants, they were asked what kinds of things they share publicly online. Most claimed “nothing” or “not much”, and three claimed “photos”. One said she tweeted. I inquired about this with their teacher who corroborated that they were not publishing creative work online beyond perhaps Instagram (Teacher, personal communication, October 14th, 2015). This opportunity to participate in a video game design based project therefore also made an important contribution towards overcoming what Henry Jenkins (2009) refers to as one of the three core media literacy problems, the participation gap. Jenkins emphasizes the importance for young people to have the opportunity to participate in new media technology opportunities, and to share their productions.

Data Collection

Data was gathered through field notes, audio transcripts, interviews, conversations, and artifacts. The undergraduate interns, Nancy Drew and myself were located in Montréal and met regularly to discuss the project. These meetings took place weekly for an hour and a half, roughly corresponding to two university semesters spanning the Fall of 2014 (September 16th - December 2nd, 2014), and Winter of 2015 (January 21st - April 29th, 2015), and through six weeks of the summer of 2015 (July 17th, 2015 - August 10th, 2015), with a few final wrap-up meetings in the Fall of 2015 in Montréal, prior to the final visit with the now grade 8 students on December 7th, 2015. I attended, documented, and participated in all meetings, with the exception of four scattered throughout the project when I had other commitments. The grade seven participants

were visited by members of the Montréal team three times throughout the project. I was present during each visit. These visits took place near the beginning (November 14th, 2014), middle (April 1st, 2015) and end of the project (December 7th, 2015). All of the meetings in Toronto were audio recorded as were most of the meetings in Montréal. I also took field notes throughout the project. In addition, a questionnaire was circulated during each visit to Toronto, where the grade seven participants were asked about their relationship with video games, their experience with game-making, their thoughts about why they did or did not play games, and perceptions about why people play or make games. The first questionnaire also addressed leadership by gathering some thoughts about what constitutes a leader (see Appendices A, B, C). Additional artifacts that came out of the encounters were as follows:

Encounter #1: A three question reflection sheet about a sample game played during the first encounter (Appendix D), and game concept sheets (*Figure 4,* p. 98)

Encounter #2: Game design documents based on characters (Appendix E);

Encounter #3: Nothing in addition to the questionnaire and audio transcripts.

The AoW Project Description

The project itself was a somewhat emergent case-study and pilot project. Several unanticipated challenges took place throughout the project so the project direction changed several times. Game design strategies also emerged as we gathered information from the grade seven participants. Decisions for how to proceed from one step to the next were collectively discussed and decided on primarily by the Montréal team and with the teacher and students in Toronto when possible. Given the complex nature of the project itself, particularly because it took place at research sites in two different cities, an ethnographic research approach was well

suited as it requires the researcher to observe and reflect about the process and situation as it unfolds. Any challenges contributed to the richness of the research as we sought to improve the quality of the project as a learning experience through future iterations. This approach allowed the project to follow its natural course, challenges and all. Regardless of the emergent nature of the project, Nancy Drew created sets of goals and timelines at the beginning of each term to guide the project. Plans obviously evolved as new things were discovered, and new ideas or challenges emerged.

We originally anticipated two face to face meetings with the grade seven students who were tasked with coming up with the main game details and concepts for the game, and for providing feedback on major game-directions and decisions, and ultimately for providing the final approval of the video game prototype. The first meeting was a workshop led by the undergraduate students where the theme of leadership was explored and discussed in depth, a game example was played and discussed, female leadership role models were shared and discussed, and initial game ideas were gathered from the grade seven participants via the concept sheets (*See figure 4,* p. 98) that they filled in for the most part individually, with two pairs deciding to work as partners, producing twelve game concepts in total (one student was absent). These concept sheets were collectively analyzed by the Montréal group for themes, moods, and key details. From this, three possible story lines were created and a vote involving the Montréal team took place to narrow the choices to two to bring to the grade seven participants. The final two plot lines were described in brief so as to allow autonomy to the grade sevens to further plan the details. These two options were voted on by the fourteen out of fifteen of the grade seven participants through the wiki space, leaving the *Ghost Hotel* option as the winner.

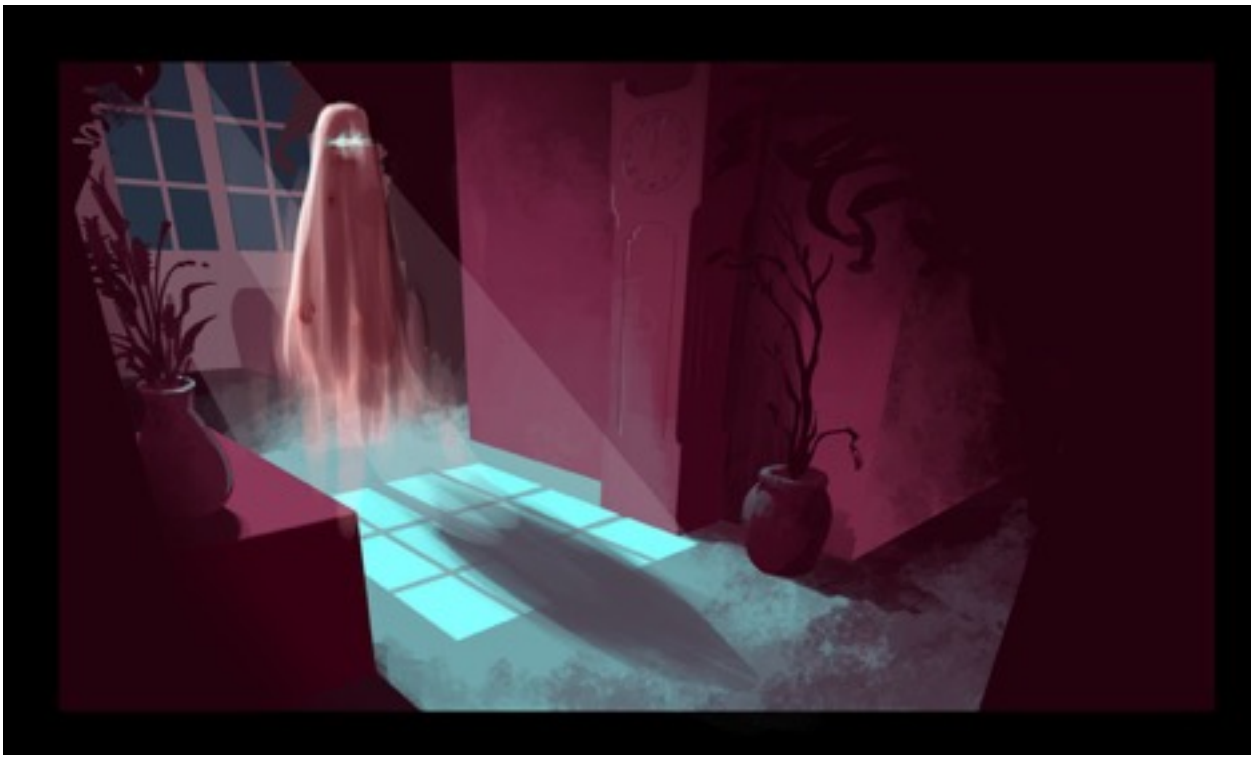


Figure 1. Ghost Hotel (TankGirl, 2015)

GAME #1: Ghost Hotel Concept
Goal: You play as a ghost, and need to manage a hotel and recruit other ghosts.
Explore: Stereotype that leaders need to be extroverted.

Figure 2. Opposite Princess (Mabel Pines, 2015)

GAME #2: Opposite Princess Concept Goal: There is a traditional stereotypical leader of the castle, but there is some foresight (perhaps involving aliens) that things will go very wrong in the future, and a new leader is required. You play as an opposite princess, who is not in need of rescuing, but is a hero, and with the help of alien-mentors becomes the new leader.

Following this we anticipated regular online communications via the wiki space, wherein we could consult with the grade seven participants throughout the duration of the game's development, however this element of the project did not work to the full capacity originally envisioned. This challenge will be further discussed in the analysis, but suffice to say it was the result of not consulting directly with the grade seven subjects to establish a method of

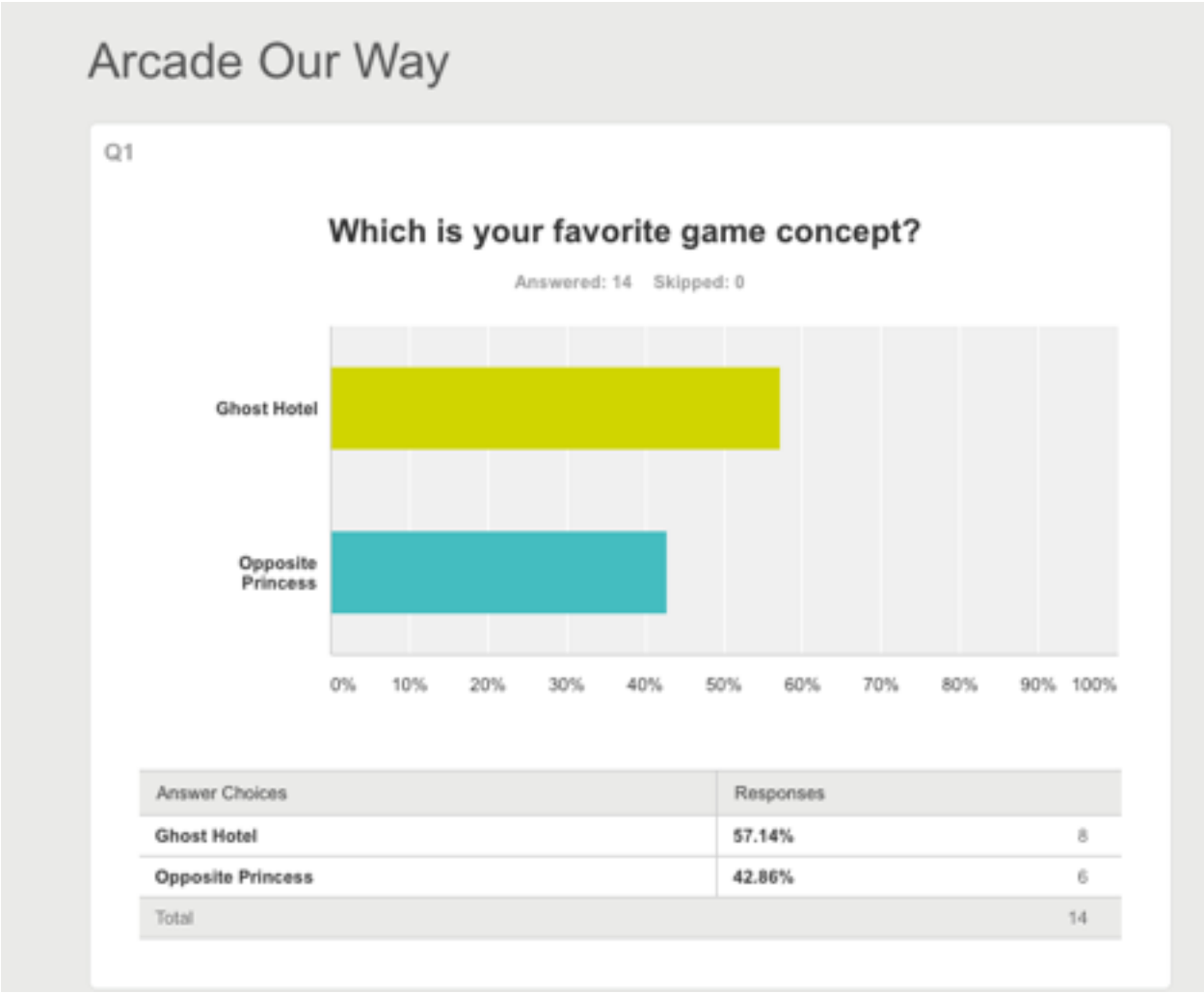


Figure 3. Game Concept Vote (Screenshot, 2014)

communication that would work for them. In lieu of this, a second unanticipated visit took place on April 1, 2015, approximately the middle of the project's duration, where the grade seven participants worked in groups based on their interest, to parse out specific details of the game within the following categories: characters, aesthetics, plot, point system, and inventory. A final third visit took place on December 7th, 2015, when a focus group session took place, where the grade seven participants (by this time grade eight students) played, discussed, reflected about, and evaluated the game prototype.

The project officially spanned a year and three month time period, from September 16th, 2014 - December 7th, 2015, and took place in two phases of team configuration. Prior to September 16th, there were also some informal meetings over coffee between Nancy Drew, Hermione Granger and Clementine (separately), each of whom had expressed an interest in working with Nancy Drew on a project related to games. Nancy Drew, myself and Clementine also met informally to discuss ideas for a possible project involving a collaboration with middle-school aged girls. The first official phase of the AoW project, involved these same two consistent interns who, guided mainly by Nancy Drew, established all key details such as the theme of the project and the name, and who ran the initial workshop with the grade sevens in Toronto. For this trip they received funding from Technoculture, Art and Games (TAG) at Concordia University.

Final Video Game Prototype Description

The video game prototype in the end took the form of what is known as a series of mini-games**.** Mini-games are short challenges, often embedded in bigger games, though incidental in terms of game progress (Mini-game, 2014). They generally involve a repeated gesture to accomplish a simple goal. These games can be played with little gaming experience and so are generally accessible. A mini-game challenge, could be pressing a button repeatedly as quickly as possible to fill a bucket with water before the time runs out. The AoW prototype takes the idea of mini-games to a new level by creating the structure for an interconnected series of mini-games, held together by a single narrative. The game involves the main character, Violet, in situations where she has to overcome certain assumptions about being a girl, to bring the run-down ghost hotel that she manages, back to life.

The prototype currently consists of an introductory video sequence where Violet is in bed

Figure 4. Violet Sleeping (TankGirl, 2015)

and her alarm goes off indicating she is late. She prepares for work in a rush and arrives to be confronted by her tyrannical boss who refers to her as a "typical human, always late". He indicates that the hotel is falling apart, and that good help is hard to find. He instructs her to "get on with the housekeeping". She tries to explain that she is in fact a manager, and that she feels it is important to discuss the broken computer. He yells that there is no help and that if she wants a computer so badly, she should fix it herself. She tries to further discuss the issue but he continuously cuts her off. She is worried that chaos will ensue without the computer system because there is a bus full of centaurs on its way to the hotel. The manager falls asleep and she sets off to fix the computer to save the hotel's current two-star rating.

Figure 4. Violet Sleeping (TankGirl, 2015)

and her alarm goes off indicating she is late. She prepares for work in a rush and arrives to be confronted by her tyrannical boss who refers to her as a "typical human, always late". He indicates that the hotel is falling apart, and that good help is hard to find. He instructs her to "get on with the housekeeping". She tries to explain that she is in fact a manager, and that she feels it is important to discuss the broken computer. He yells that there is no help and that if she wants a computer so badly, she should fix it herself. She tries to further discuss the issue but he continuously cuts her off. She is worried that chaos will ensue without the computer system because there is a bus full of centaurs on its way to the hotel. The manager falls asleep and she sets off to fix the computer to save the hotel's current two-star rating.

The player then enters a screen where she is sitting at a computer. Two large left and right pointing arrow keys appear indicating that these are to be pressed during game-play. A timer counts down in the top left corner while the player hits the arrow keys as quickly as possible. Messages pop up several times. Violet has to make a quick choice between distractions on the

Figure 5. Violet at Computer (TankGirl, 2015)

internet and transferring of files. If she manages to outspeed the timer, she proceeds to a similar screen where she is now leading the exorcism of the computer and similarly has to out-speed the timer. If successful, the computer beep boops back to life. If unsuccessful, Violet has to complete both tasks again. When she succeeds, she exclaims, “Who would have thought you could exorcise a computer?” She explains that things were different back home and if she is going to make a difference she will need more help. The boss exclaims, “Get back to work!”, and Violet says, “Yes, Sir”. The player levels up to Janitor in Chief. The next screen explains that Violet is slowly gaining the respect of the ghosts in the hotel but that there is a long way to go

before she can build the ghost support to bring the place to life. The player is asked if they can help her by creating the next challenge.

The purpose of the AoW project was to build the prototype. The next idea is that the prototype be built upon by others. During the final focus group session, the grade seven participants who had now become grade eights were asked for any further suggestions that they thought the prototype should take. In the future the intention is for the prototype to travel to other contexts for further suggestions.

This mini-game prototype is meant to undermine assumptions that are typically made about girls. In the first mini-game described above, the idea is that girls, and people in general, should reflect about situations from their own perspective, rather than simply obeying orders. Another example of one of these mini-video games that was conceived of by Lisa Simpson but not added to the prototype due to time constraints was based on the assumption that girls should always be careful and should not take risks. In this scenario, Violet is in need of various tools to make repairs around the hotel but she has to climb structures to gather the tools. Violet is good at climbing, and the game challenge is to accomplish this goal without being seen by those who tell her she should be careful and should not be climbing. Another example conceived of by Lisa Simpson, is that Violet is in the laundry room doing her own laundry and is approached by another character who asks her to do their laundry. The screen splits and Violet has to hit the arrow keys to keep two washers going. This scenario continues to build with more and more characters approaching her to do their laundry. In this scenario Violet has to learn to say no. Mini-games function well as a cumulative model because further mini-games can easily be added to the prototype both conceptually and technically without much difficulty or limitations.

Chapter 6

Analysis Part 1: Energizing Moments

In this chapter I will describe how I established which moments could be considered as energizing moments, and triangulated these moments with input from Hermione Granger and Clementine. This will be followed by descriptions of each of the seven energizing moments that took place during the AoW project. In the final section I will suggest implications for future iterations of the project based on these descriptions. To help the reader to understand the stages of the project, it can be divided based on these stages of game development:

1. The planning stage (interns establish themes and create workshop for grade sevens);
2. The idea gathering stage (concept sheets);
3. The mining stage (establish two story directions with artistic representations);
4. The story and character selection stage;
5. The GDD stage (characters, plot, point system, inventory, aesthetics);
6. The game jam stage;
7. The prototype stage.

To establish the energizing moments, the initial rubric I used was based on the moments that stood out in my memory. These field-notes are reproduced here:

1. Toronto: the fiery phoenix/most powerful of energizing moments was the unintended second visit I made to the school because of our communications fail - during this face to face meeting, where the focus was to establish the main details of the game in the form of the Game Development Document within the following categories: plot summary, character bible, aesthetics/art style, inventory, and point system.
2. Heading to Toronto?: Practice workshop and interns excited to meet the girls and actual begin the ‘real work’.
3. Montréal: When we first started to analyze the ideas of the girls for patterns.
4. Montréal: Having visuals conceived of by artists to represent main concepts.

5. The game jam.
6. Toronto: playing the prototype - (teacher next door had to tell us to tone it down!)

I created a timeline to clarify where and when these moments took place during the project. I revisited them through the audio transcripts to confirm that I would still consider them energizing moments. Through the recordings, I was able to hone in on where the high energy moments were within the event. I also looked more closely at what happened in these moments that enabled them to stand out to me. It was clear to me from the beginning that an unexpected visit with the grade seven participants approximately half way through the project easily stood out as the most energizing moment within the project. Playing the prototype was a close second but the rest required further confirmation and triangulation involving the perceptions of the interns. As I revisited the moments, I asked myself what it was about these moments that made them recognizably energizing. This is how I derived the six characterizations representing energizing moments for the grade seven students and the four characterizations representing the adults, as they are listed on the preceding page. After establishing these criteria, a more precise list of seven energizing moments was established:

1. First meeting with the grade seven participants: concept sheets and gameplay.
2. Analyzing original concept sheets for patterns.
3. First visuals produced by artists.
4. Grade sevens seeing character visuals.
5. Game design document development with grade sevens.
6. Game Jam - establishing mini-games idea.
7. Grade sevens playing prototype.

Phase one project triangulation. Hermione Granger and Clementine were present during the entire phase 1 of the AoW project (September 2014 - April 2015). The phase one energizing moments were triangulated by sending the descriptions to the interns for their insight. They were

sent the characterizations of energizing moments, the final revised list of potential moments, and the energizing moments descriptions as they are explained below. They were asked the following questions by email and provided detailed responses:

1. Do you disagree with any details or interpretations?
2. Can you add any details you think are important?
3. Are there any energizing moments that stand out in your mind that I have left out?

Hermione Granger agreed with the energizing moments overall and added thoughts about what she found energizing during #1: the first meeting with the grade seven participants. Her thoughts were added to the corresponding moment description below. Interestingly, Clementine added a moment to the list that occurred prior to the official commencement of the project. This moment is worth mentioning, as it was a highly energizing moment that I had not considered.

> (Beside the list of 7 moments she wrote) - "Totally agree especially 1 (first meeting with the grade seven participants) and 3 (first visuals produced by artists)! I personally would even add the very first time we talked about the project. You, Nancy Drew, and I went to Furco and talked about "an initiative that would help us teach young adolescents about gender equality" - it was in the summer. (Clementine, personal communication, February 29, 2016)

In retrospect this was indeed a highly energizing moment. Beginning to consider the possibilities was really exciting for all three of us.

Phase two project triangulation. Lisa Simpson, Tank Girl and Captain Holt were present during the two-day game jam[10] that took place during the second phase of the project. I shadowed the game jam for the full first day, part of the second, and was present for the two game pitch sessions. One game pitch took place the second morning and the other took place the morning following the game jam. Because I don't have documentation of the entire game jam, feedback from the interns about specific energizing moments during the game jam was particularly important. Their responses are outlined in the game jam section. I asked the interns the following questions to triangulate my own perceptions:

1. When you were working on the game jam was the whole process exciting overall?
2. Can you think of any particular moment when everyone was excited and inspired at the same time throughout the game jam process?

Descriptions of the Seven Energizing Moments

In the following section each of the seven energizing moments will be described in detail. The analysis will follow.

1. First meeting with the grade seven participants

Date: November 14, 2014

Location: Toronto

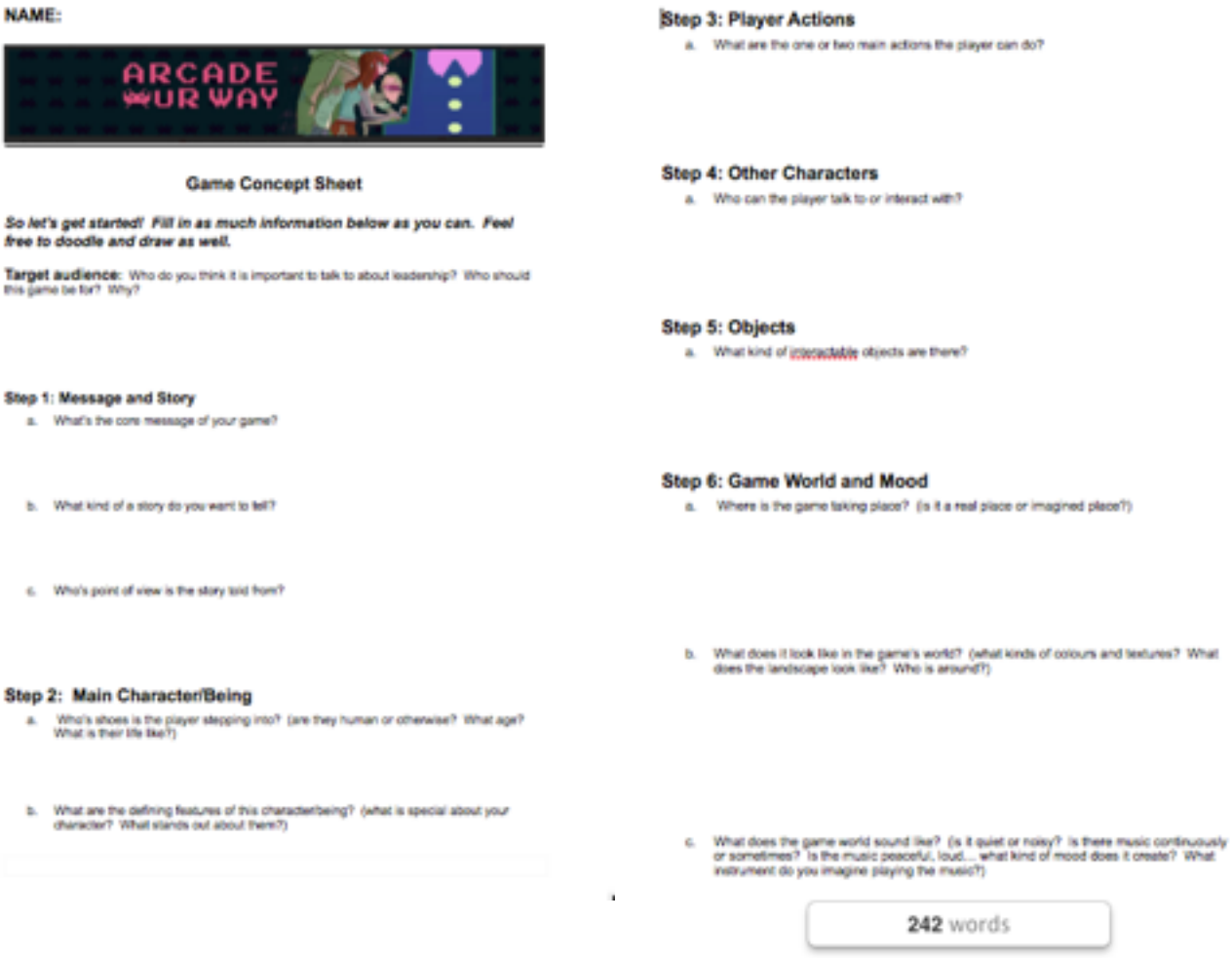
Participants: Hermione Granger, Clementine, me, grade sevens, teacher.

I will describe the time preceding the first meeting with the grade seven participants to in order to provide context. This description will also provide a more detailed understanding of the project structure. Hermione Granger, Clementine and I met with the grade seven participants for

[10] A game jam is an intensive game-making session that typically takes place over a weekend or two to three days. During this time a team of people, typically with various skills as programmers, artists, and writers, collaborate to come up with a game concept and prototype. In the case of AoW, the idea was to come up with three different game concept presentations to share with Nancy Drew and me, and to collectively choose the direction of the final prototype of the AoW game.

the first time on November 14, 2014. Prior to that meeting, beginning on September 16th, Hermione Granger and Clementine were meeting weekly for one and a half hours with Nancy Drew and me. During that time they were researching approaches to teaching and learning about gender issues. Hermione Granger looked at lesson plans, teacher resources, e-books, e-magazines, printed publications, digital games, podcasts, websites, movies, and campaigns and applied a rubric to each one involving the following categories: description, fun level, appeal, effectiveness, and innovation. Clementine looked at curricula, training, modules, activities, reports, games, government and agency policy documents, and books and applied a rubric to each one involving the following categories: developer, audience, content and goal, comments, effectiveness, and criticism. After discussion about available resources about gender, and the various ways it was being taught, the Montréal team identified gender and leadership as an area that was in need of innovative resources. Hermione Granger and Clementine conducted another environmental scan to see what games and approaches there were that related to this topic. The interns presented their findings to Nancy Drew as well as the professors who were supervising and grading this work for independent study credits.

Throughout this two-month preparation period, preparing to meet with the grade seven participants, there was a general excitement and momentum as we prepared for the first meeting. This session with the grade seven participants was to take on a workshop-type format, designed and led by the interns. During this workshop the interns would explore ideas about leadership with the grade seven participants, and then specifically look at, play, and discuss related games. The ultimate goal was to complete individual game concept sheets (*Figure 4).* Prior to meeting



NAME:

ARCADE UR WAY

Game Concept Sheet

So let's get started! Fill in as much information below as you can. Feel free to doodle and draw as well.

Target audience: Who do you think it is important to talk to about leadership? Who should this game be for? Why?

Step 1: Message and Story

a. What's the core message of your game?

b. What kind of a story do you want to tell?

c. Who's point of view is the story told from?

Step 2: Main Character/Being

a. Who's shoes is the player stepping into? (are they human or otherwise? What age? What is their life like?)

b. What are the defining features of this character/being? (what is special about your character? What stands out about them?)

Step 3: Player Actions

a. What are the one or two main actions the player can do?

Step 4: Other Characters

a. Who can the player talk to or interact with?

Step 5: Objects

a. What kind of interactable objects are there?

Step 6: Game World and Mood

a. Where is the game taking place? (is it a real place or imagined place?)

b. What does it look like in the game's world? (what kinds of colours and textures? What does the landscape look like? Who is around?)

c. What does the game world sound like? (is it quiet or noisy? Is there music continuously or sometimes? Is the music peaceful, loud.... what kind of mood does it create? What instrument do you imagine playing the music?)

242 words

Figure 6. Game Concept Sheet (Nancy Drew, 2015)

with the grade seven participants, we invited people from Technoculture, Art and Games (TAG)[11] community to attend a practice session and provide feedback. There was a consistent degree of excitement and anticipation leading up to this moment. It was during the session with the grade seven participants, however, that there were moments that could be classified as energizing, according to the characterizations outlined above. During this visit the grade seven participants were most excited when they played a video game called *McDonald's Video Game* (La

[11] This is a community of people who do various kinds of work related to games. The TAG lab is at Concordia University but membership expands beyond Montréal

Molleindustria, 2006) during the workshop. This game is an example of an anti-advergame, or persuasive game (Bogost, 2007a; Bogost, 2007b) created to engage the player in a critique of McDonald's. We used this game as a catalyst for discussion about types of leadership. The player is in charge of a McDonald's franchise in this case from the farmer's fields, to the factory, to the

Figure 7. Students Playing McDonald's Video Game (Workshops #1, 2014)

restaurant, to the corporate boardroom and marketing office, and you move from screen to screen making decisions in each McDonald's context. This experience was interesting in several ways. First of all, Hermione Granger, Clementine and I thought we would have to provide direction about how the game worked, as it is quite complicated. However, as soon as the participants had

the game loaded on their computers, they jumped right in and figured it out. This also took place during recess where they opted to begin playing rather than taking a break. Though not all of the characterizations of energizing moments happened during this play session, most of the students were highly engaged, and there was a lot of excited chatter about the game, playful banter, and a fair bit of laughter throughout the play session. Many lost the game immediately, but lasted longer the second time they played. At the beginning someone said, "I don't get the point of this," but she managed to figure it out.

The following outtakes provide an example of playful banter, followed by an example of a literal verbalization of excitement, followed by an example of further literal verbalization coupled with pitch increase and talk-fast. In the first outtake, the idea that you "do not question the mayor" but rather "corrupt him" became an ongoing joke returned to in later conversation. Overuse of the word "activate" became an ongoing joke as well. Asterisks around a section of words denote a pitch increase (p) and/or talk-fast (tf):

- You do not question the mayor.
- Don't question the mayor.
- You don't question him… you just corrupt him.
- Activate
- Activate everything there is!
- Activate everything
- Ok. Nothing here. Go back to here. Let's talk to this guy. Can we activate him? Haha.
- Oh, look at the level, look at the purple rising.
- Activate.

- Activate.
- Come on.
- Is there anything happening on the farm?
- Oh my God! Hahahhahah.
- We have to go back to the farm and now see … our money hasn't increased.
- We have to increase it.
- Can we build the mayor's house?
- (Inaudible)….. hahahah.
- Come on let's corrupt this, let's activate this lets (inaudible) this.
- Let's to go the mayor's office. Can't we just ask him ….
- Ask the people.

(audio transcript, November 14, 2014).

While filling in a three-question survey, two girls thought through the questions aloud:

- How did you feel as you played?
- Overwhelmed.
- No, I feel excited.
- Overwhelmed and excited.

(audio transcript, November 14, 2014).

Teams who were winning became particularly excited:

- I'm *LOVING THIS GAME* (p).

- *We're doing it* (p).
- *We're winning! We're winning!* (p, ft)
- There's 9 beef cows.
- We're winning! We're winning!
- Can we continue playing?
- I'm loving this game!
- Renee, pause it for now, so Clementine is going to take over from here
- (Clementine) Ya so how was it?
- FUN.
- We're winning! We make cows.

(audio transcript, November 14, 2014).

The student excitement and energy during the play session was accompanied by feelings of frustration. On the three-question survey (see Appendix D) they were asked:

1. How did you feel as you played?
2. What did you learn from the first time you played to the second time you played?
3. What kind of traits were you expected to have during the game?

In response to these questions many noted that the game made them feel frustrated; however, frustration in this case became a component of the high energy. During gameplay the students were yelling at their computers, engaged. When the play session was over, most wanted to keep playing. Within this mix, one student was completely uninterested, and one student played the

game but was not as excited or engaged as the others. All fifteen students were present during this first session.

After two months of thinking about the grade seven participants and preparing for this visit, Hermione Granger, Clementine and I found the overall experience highly energizing. The actual game design process, the main objective of the project, had finally begun. For the undergraduate students, having the trip paid for also added a sense of significance to their role in the work (Hermione Granger & Clementine, personal communication, November 13, 2014). For me, listening to the ideas of the grade seven participants while they were filling in their concept sheets was the most exciting aspect, and Clementine agreed.

Hermione Granger's response to the "first visit with the grade sevens" as an energizing moment. "For me, another energizing moment during the first workshop was the discussion of leadership where we started to reach the common understanding that much of "good leadership" is highly gendered. I think that discussion fired the girls up a bit and got them excited about the project too". (Hermione Granger, personal communication, February 27, 2016). As mentioned in the introduction to this chapter, there can be many ways of gauging excitement. Listening back to the leadership and gender conversation from the audio transcripts (Audio transcript, November 14, 2014) led me to conclude that excitement does not meet the criteria of energizing moments for the grade seven participants. It is nevertheless true that this conversation was important. The participants reflected on what leadership can be. The youngest participants demonstrated complexity of thought. This could be considered a different type of energizing moment characterized by a high degree of engagement in conversation, complex thoughts and critical-thinking skills. Many strong points were made during the conversation about the

importance of the context in which one is raised, mentorship, and the fact that gender roles do not exist as much when people are really young but get stronger when people age. There was also discussion about different types of leaders. The grade seven participants generated a list of the most important leadership traits: responsible, confident, strong, kind. One student explained that she thought the traits people chose to apply would depend on the type of leader they were. She explained that a dictator, for example, would not require kindness or responsibility.[12]

2. Analyzing the Original Concept Sheets Written by the Grade Seven Students for Patterns

Date: February 5, 2015

Location: Montréal

Participants: Hermione Granger, Clementine, TankGirl, Mabel Pines, Nancy Drew, and me

This was our first big working meeting scheduled for half a day (four hours) instead of our usual hour and a half. This was also the first time that the artists (art intern #1 (TankGirl) and art intern #2 (Mabel Pines) fully joined the team. Prior to this, Tank Girl attended some of the meetings. This was the first time we met Mabel Pines. This was a significant moment in the project because it was the first step towards defining what the game was going to be. For the fifteen students, thirteen concept sheets (four of the students worked in groups of two) were filled in. The students identified their choice of potential target audience, message and story, main characters and other characters, player actions, objects, game world, and mood (see *figure 4*). In addition to the concept sheets, most of the students also chose to describe their ideas for the audio recorder, as they found it easier to explain their ideas verbally than to write them down. During

[12]These details along with examples are further discussed in the collaboration and critical-thinking section of my analysis.

the meeting in Montréal, each of the concept sheets were examined for repeated game structures and moods (see figures 5 & 6). The related audio explanations were played. Game structures and moods were drawn from each concept sheet and tallied from each student or pair of students.

Game structure	**Students**	**Tally**
Leading a Group	Sid, Beth	2
Management	Ai'groeg, L.N.&+L.A., abieber21, S, Rosa,	5
Storybased	Midie(2 students)	1
Mission Based	Toriel, Darzi-Bearz, Shezza, Sobrien, Nevie Bear	5

Figure 8. Game Structure Tally

Moods	**Student**	**Tally** **New Tally**
Non-stereotypical Gender Role or Storyline	Darzi-Bearz; Shezza; Nevie Bear	3 3
Realistic	Sid; Ai'groeg; L.N.&+L.A.; abieber21; S; Rosa; Georgia	2 6
Horror	Beth; Midie(2 students); Nevie Bear	4 3
Science-fiction	Midie(2 students); Toriel; Darzi-Bearz	1 3
Action/Fast Paced	Toriel; Shezza; Sobrien;	1 3

Figure 9. Mood Tally[13]

The following three storylines were established and voted on by the Montréal team:

[13]The old tally represents the number when we aimed to place each story idea in one category. The second tally was derived from allowing for multiple categories. The horror tally decreased because a zombie apocalypse story was moved from the horror category to the science fiction category.

1. **Inspiration:** Based on Shezza's opposite princess.

   Setting: Medieval fantasy.

   Character: Young adult human.

2. **Inspiration:** Based on Sobrien's idea of a local setting, Toronto and science-fiction mood.

   Setting: Toronto in the Future.

   Character: Aliens.

3. **Inspiration:** L.N. and L.A.'s idea of a hotel as a setting and horror mood.

   Setting: Haunted hotel.

   Character: Ghost.

Storyline #1 and #3 were the winners. These themes were slightly elaborated on before sending them to the grade seven participants for a vote (see *Figures 1, 2 & 3),* but the storylines were kept simple and vague so that the grade seven participants could build them up. This process itself was exciting. After the storylines were established, there was a feeling of significant accomplishment accompanied by clear verbalizations of excitement:

Hermione Granger: Wow, I'm so excited! This is the most real it's gotten (laughter).

Me: Shit's gettin' real! (laughter).

Nancy Drew: In still a quite abstract way! (laughter).

(audio transcript, February 5, 2015)

3. Revealing the First Visuals Created by the Art Interns

Date: February 11, 2015

Location: Montréal

Participants: Hermione Granger, Clementine, TankGirl, Mabel Pines Nancy Drew, and me

The first visuals we saw were the scenes created (*Figures 1 and 2*) to represent the two storylines that were established based on a combination of ideas from the grade seven participants. There was something significant that happened when the first visuals and subsequent visuals were revealed. There were expressions of excitement and a palpable feeling of awe. Written and verbal descriptions did not have the same effect as visuals. Ideas without visuals remained somewhat in the abstract, and it was not until there was something to see that things really began to feel real.

Hermione Granger: This picture should totally be on the website, it's so cool!

Me: Ya, it's so cool [hand clapping].

Nancy Drew: If you guys are ever unsure about your art, you can just show us and we'll make sure you feel better after.

Clementine: I don't want to make a choice between the two [images] so now we're making 2 games!

(audio transcript, February 11, 2015)

4. Grade Sevens Seeing the Character Visuals

Date: April 1, 2015

Location: Toronto

Participants: Grade sevens and me

Once the visuals and basic storylines were ready, we posted them on the AoW project website and invited the grade seven participants to vote on their favourite using SurveyMonkey,

Figure 10. Possible Characters (Tank Girl & Mabel Pines, 2015)

an easy-to-use online software (see results *Figure 3*). Fourteen of the fifteen students participated. Two weeks later, we used SurveyMonkey to invite the grade seven participants to vote on the drawings of possible characters for the game (see *figure 7*), select their favourite colour combinations, and share ideas about possible super-powers. Five of the fifteen students responded this time. In person, when I shared the image of possible characters with the grade seven students and mentioned that the character identified as *E* came in second, they immediately began cheering, and without prompting, also began firing out ideas about the various roles they imagined *E* could play, with plenty of excited chatting overlapping idea sharing. There was

certainly increased pitch in their voices as they literally squealed about how cute *E* was. The following is a dialogue excerpt from this moment. The brackets indicate overlapping discussion: any bracketed parts in succession overlap one another. Asterisks around a section of words denote a pitch increase (p) and/or talk-fast (tf):

Me: in second place is the little fire dude

Multiple people: cheering, wow, ya!

Student 1: wait the fire dude could be a side (character) (student 2: I think he looks like) student 3: It could be your pet or (something) (student 4: like Ariel) (*multiple people talking and saying ya! and oh my god, and then there's and just like….a crescendo of excited noises*) (*tf,p)

Student 5: (squeals) "*so cuuute!*" (*p)

Me: You were waiting so patiently.

Student 6: Two things. He could be like your assistant or (something) (student 7: or it could be like [inaudible]) and it also looks genderless, and I like that, and um and also what I was thinking about the [inaudible], what you could do is like you could show the backstory, of how that ghost became a ghost and the way she became the ghost was like she was dared to go into like a haunted place and some magic happened and she became a ghost.

Student: Ya!

Me: Good idea!

Student 6: Ya and she's at the start um this (hotel) (several students talking [inaudible]).

(audio transcript, April 1, 2015)

5. Game Design Document Development With Grade Sevens

Date: April 1, 2015

Location: Toronto

Participants: Grade sevens and myself

This visit was not originally planned. The Montréal team assumed that email and a wiki-space would be the main modes of communication between the grade seven participants in Toronto and the interns and professionals in Montréal. As the project was being conceived we consulted with the teacher regarding this plan, but we did not consult directly with the students. One of the challenges of working with schools is that it is never easy to access the students. During the planning phase, I had not yet received consent and assent forms from the students and their parents. I imagined that once we were able to connect online, through email and the wiki-space, issues of communication would be resolved and there would be a constant flow of information back and forth between the participants in both cities related to game-design decisions. Unfortunately, this was not the case. Through this process I realized that when it comes to technology, it is difficult to impose new habits into the ecosystem of regular technology use.

Originally, communication about the project was to take place during the grade seven computer class. I thought this formal engagement with the project would guarantee participation at least during one class period per week. Remembering passwords and remembering where to find the link to the wiki were challenges for the students, and in the end the idea of regular participation during computer class did not work out. Being a teacher myself, I am sensitive to the possibility of complicating the life of the teacher. Participation during computer class turned

out to be too much of an interference for the teacher and the students. This conclusion, however, was stretched out over a long period of time. For the three weeks following the initial visit, we attempted, with some success, to communicate through the wiki-space and email. This brought us into the holiday season of 2014 which was a non-productive time. On January 21, 2015, the regular Montréal meetings resumed and we attempted to pick up where we left off with the grade seven participants. We completed the analysis of their concept sheets on February 5, at which time we continued to try to share information via the wiki-space. We were able to conduct the storyline vote online, but we were not able to engage online to the degree that we had hoped. We came to this conclusion in early March. When the Montréal team realized this was the case, we began to devise an alternate plan. Strategies moving forward came down to Skyping with the students or going to Toronto for a face-to-face meeting. The teacher was not in favour of the Skype idea and preferred the idea of a face-to-face meeting. Because I was the only one who could attend, the team, lead by a support intern,[14] created a video introducing everyone on the team in Montréal as a replacement for more direct contact.

The plan for this visit was to create a simplified version of the game design document (GDD), based on the following categories: characters, plot, inventory, point system and aesthetics. Basically a GDD keeps track of all of the details related to each category. The plot section for example would describe the main story of the game and the back-story leading into the main plot, and any details that unfold as the game progresses. We pulled examples from the GDD for a game Nancy Drew's gaming company was developing, and simplified them for classroom use in the form of "missions" (see GDD "character mission" example appendix E).

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[14] This was one of the interns who joined us for a short period of time, contributed the video and helped to create the GDD missions.

During the visit, students broke into groups based on the category area they were interested in developing (characters, plot, inventory, point system, and aesthetics). After accomplishing the missions, each group presented their ideas. If there were discrepancies discovered between groups, they would have had time to tweak the idea to ensure everything made sense to each group. The inventory group was the only group that consisted of only one student. I worked with her while also recording the participants as they discussed their missions.

The excitement was obvious in the room as they began working on their missions. I was overwhelmed in a positive way by the energy in the room. Given our limited time my biggest concern was how to ensure that the missions synched up with one another. Students began cross-pollinating ideas without the need for guidance or facilitation. Groups talked to one another, sharing ideas and adjusting details through discussion, while demonstrating the characteristics of a highly energized situation.

The following dialogue is an example from this session[15]. In this section, the character group spoke to the point system group. Students 1 and 3 were from the character group. Student 2 was from the point system group. The inventory group consisted of one person who was also present (Student 4). Small letters are used here simply to identify each line of dialogue for reference.

a. Student 1: you want to make it more realistic and kind of just like at the same time in a game so like maybe you can like make some characters like humans (sleeping in the bed)(student 2: “or maybe you, oh ya ya ya!), or some kind of obstacle in the mini-game (Student 3: ya, ya like).

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[15] Coding technique described on pages 135, 141 & 149

b. Student 2: *or like if you touch the human your progress gets reset and also like* (tf, p) you use your coins to buy the bedbugs (someone: yes!).

c. Students 3: okay like, *can i say something, can i say something?* (*tf) there is gonna be this okay so do you remember the ghost that was like a dj and had the bunny on its back, i can imagine that that's a ghost that lives there and he gives you stuff to go and kill to go and try and take out (them) (Student 2: No I).

d. Student 2: …feel like that makes the game way too easy - i feel like you have to pay in (points) (student 3: or how about or how about you) you get a discount once you friend him.

e. Student 3: or how 'bout you find things around the house instead of buying them but you have to go inside the (house) (Student 2: no!).

f. Student 2: we were thinking that you find coins by like searching (items) (Student 3: ya but).

g. Student 3: where do you get the items from?

h. Student 2: *no like no like* (*pitch) ok so like when you go into the hotel (tf), you search items like search under a lamp post, you might find (like) (Student 1: you can find like) two coins or something.

i. Someone says: ya.

j. Student 1: for that you can find like a little bit, like how you start off with an amount (ya), and then also (tf) like you get points like helping people out (ya) (ya) um, so like (student 4: and you try not…hmm) if one of your ghost friends needs help like digging up their coffin or something, than they'd be like oh thanks for that friend, by the way here's 50 (coins) (student 4: ya, ya) (student 2: ya).

k. Student 2: ya, we were thinking that like um that those would be side quests like you don't need to but like it'll boost your (score) (ya).

l. Student 1: and you might get like more (money) (student 4: student 2!)

m. Student 4: each time befriend someone or become better friends with (them) (Student 2: they follow you) you rank up or something and then you'll gain more points

n. Student 2: oh YA!

o. Student 1: like helping your friends can also be like a mini-game so helping your (ghosts) (Student 4: oh um sometimes) (me: girls) um like um

p. Me: what should we do about? should we still have little mini-presentations? or (ya) do you still have details to work out?

q. Student 2: we kind of all have just one (giant) (me: all of you)

r. Me: just communicated naturally (Student 2: ya 'cause that's for me…)

s. Me: except for (aesthetics) (Student 2: okay), (student 4: we were talking with aesthetics also), (you need) to make sure, okay so maybe we'll just have a big group meeting (student 2: also)

t. Student 2: we were thinking that um when you like lose a mini game, s'like there are mini-games all around, s'like when you're like *so there's like a day and night cycle*, (*pitch) so then at night you're trying to prank Monsieur Le Fromage *so then like, you have to like buy things* (*tf) from like this like dj guy, and you can buy like cans of bedbugs, or like like skunk spray or something and then you like you like (me: laughing), prank the guests so that Monsieur Le Fromage runs out of business, so that's probably like the end game like you make M. Le Fromage go bankrupt

u. Me: ah, and then you build it up from (scratch) (student 2: ya! then you build your own).

v. Me: that could be a whole part 2 actually.

(audio transcript, December 7, 2015)

The facility with cross-pollination of ideas illustrated here is a testament to the culture of the classroom itself. I have gotten to know this group over a period of a year and eight months, and also know their teacher well. The students themselves are close, and the teacher's approach to teaching involves many opportunities for collaboration. Students are also often challenged to work together to solve open-ended problems. This capacity for collaboration may be unique to this class but it would be interesting to compare a similar situation in another type of classroom context.

In response to the general buzz in the classroom the teacher said:

> You couldn't start this virtually, but there's nothing like face to face - at this stage of the project you broke through difficult part and now it's the exciting part generating story ideas, and you couldn't achieve the same detail or enthusiasm without being face to face …there's an immediacy to it as well… you can *read* somebody's idea, but by the time you've got the idea out you've lost a lot of the joy (audio transcript, April 1, 2015)

This was one of my favourite moments and quotes of the entire project. The joy of an idea was maintained through the immediate reception of the idea, and the momentum built as the ideas moved back and forth, were transformed, and evolved through and around the conversation of the students. This joy that came from growing ideas face to face could not have been replicated online.

6. Game Jam

Date: July 22-23, 2015

Location: Montréal

Participants: Lisa Simpson, TankGirl, and Captain Holt, with Nancy Drew overseeing as I recorded and took field notes.

A game jam typically takes place over the course of a few days. A team typically composed of story writers, artists, and programmers work together to develop a game. Leading up to our game jam, a new temporary intern, Captain Holt, was given access to all of the documents related to the project, including transcripts from the workshops with the grade seven participants. Captain Holt was brought in for the game jam only. He expressed his excitement from the beginning of the project, explaining that he had trouble sleeping the night before because he was looking forward to the event. The interns worked on ideas for the full two days, from 10:00 a.m. to 6:00 p.m., with some extra time at night building slideshows to share the concepts with Nancy Drew and I. Nancy Drew met with the team first thing each morning and at the end of the day. During the first day, I followed the team the entire day and through their lunch break. I audio recorded and took field notes. On the second day, I was there in person for their pitch from the first day and throughout the morning. I Skyped in for their final pitch. On the first day, Nancy Drew encouraged the team to think through a card game with both digital and tangible possibilities. This entire process was energizing, likely due to the time pressure in combination with the creative energy. The moment that really stood out as an energizing moment was when it was decided that the mini-game idea was the direction we were taking for the prototype. This excitement partially came because the concept of using a series of mini-games as the base for a

full game struck us as quite unique. Mini-games are typically superfluous within a bigger game or exist as a quick casual game to be played without too much of a time commitment. We decided to create a series of interconnected mini-games about leadership. I felt excited about the possibilities and excited because the grade seven participants were highly motivated by mini-game ideas during the GDD session. They were somewhat obsessive with mini-game concepts that they wanted the game to contain.

Triangulation: Intern responses to questions about the game jam.

1. When you were working on the game jam was the whole process exciting overall?
2. Can you think of any particular moment when everyone was excited and inspired at the same time throughout the game jam process?

Lisa Simpson's response to the two questions posed via email.

Lisa Simpson's response:

> The best time for us was when we had been stuck trying to work out the card concept and ended up finding a solution to our design problem. The most exciting part was when we passed the bottleneck of a specific concept that didn't work,[16] which gave an influx of ideas. (Lisa Simpson, personal communication, March 18, 2016)

Captain Holt's response to the the two questions posed via email.

Captain Holt's response:

> It is absolutely fair to say it was a very exciting experience, for me at least. I felt we had a great team chemistry with Tank Girl and Lisa Simpson, our exploration of gameplay concepts was very fun of course, the environment of work was absolutely great. My

[16] She is referring to the challenge Nancy Drew provided to try to come up with a card game.

> memory isn't great to be honest, but I believe right after we stopped trying out the board games (on the second day I was there I think?) and tried to come up with game ideas coming from those was very exciting, whenever someone pitched in an idea we built up around it and then moved to another, it was a great moment. (Captain Holt, personal communication, May 12th, 2016)

7. Playing the Prototype

Date: December 7, 2015

Location: Toronto

Participants: Lisa Simpson via Skype, me, and the grade seven participants (now in grade eight)

For multiple reasons, including that our contact with the grade seven participants was infrequent after the GDD visit in April, the now grade eight participants were somewhat resistant in the final visit to share the prototype. Though I had ethical permission from all participants I wanted to refresh the project concept for both the students and parents so I sent out another round of consent forms. This conclusion about resistance comes from the fact that few of them had returned their consent and assent forms up to the day before the scheduled visit. Their teacher and another collaborating teacher informed me that they were complaining a bit about this final meeting. However, both teachers spoke to them and all assent forms were in place by the day of the final visit. I think the resistance for the most part came from the time lapse between visits. It may also have had to do with age and resistance to a project associated with them when they were an entire grade younger, but this is speculative.

I felt somewhat disheartened from the initial unenthusiastic response from the students. I was worried about how they would respond to the prototype. I had also wished to have Lisa

Simpson and Tank Girl with me in person, but for various reasons this did not work out. Lisa Simpson attended through Skype.

In contrast to my fears, overall, the response to the prototype was very positive. The response when actually playing the prototype was over the top in terms of energizing, and it is this game-play that was in fact the energizing moment. This is not a transcript I can actually type out because essentially it consisted of a lot of cheering and loud noise. The focus group began with the prototype. The game was set up on my computer and projected so that everyone could see it. The plan was for students to take turns trying it out for as long as they wanted to do so. What happened was that they had trouble winning the two mini-games that form the prototype. When the first player began there was a cacophony of cheering, to the point where the teacher next door had to stick her head in the door and ask us to keep it down. This went on for six rounds, by six different girls, until it was beat. I had originally thought the game would be too easy.

Not every student spoke during the focus group, and although I reminded them that I was eager to know what they really thought and would not be offended by any critical feedback, the students no doubt would have likely been uncomfortable sharing negative criticisms. The feedback from students who spoke, however, was thoughtful and enthusiastic. Though overall quite positive, after playing the prototype, at least one student was surprised and expressed what I interpreted as disappointment with the simplicity of the prototype. I draw this from her repetition of the question, “This is it?” I attempted to elicit further information from this participant later in our discussion and she expressed that it would be easier to judge the game if she had time on her own to play it.

Energizing Moments Analysis

The descriptions outlined above provide a sense of the overall project, focusing attention specifically on the seven energizing moments that took place throughout the course of the project. In the following section I will examine the implications of these incidents more closely. I will discuss what each of the energizing moments have in common with one another to theorize strategies towards the re-enablement of such moments in future iterations of the project. The following research questions related to energizing moments will be addressed in this chapter:

- Through consideration of energizing moments throughout the project, what was happening in such moments that motivated the participants and maintained their interest?
- What deflated motivation and interest?
- Based on these analyses, what are guidelines that could enable future projects?

Addressing Energizing Moments Research Questions. Recognition of the commonalities shared between the energizing moments will elucidate details that address the research question: what motivated the participants, and maintained their interest? What is common to each of the energizing moments is that they move in some way from the realm of the abstract (ideas and concepts), to that of the real (manifestations of ideas and concepts). With the exception of the energizing moments that took place during play of *McDonald's Video Game* (La Molleindustria, 2006) and the *Ghost Hotel* prototype, occurrence of energizing moments corresponded to the milestones or to each significant stage in the development of the game. Another way of describing this correlation is that as the vision for the *Ghost Hotel* game prototype became increasingly clear, there was a corresponding energizing moment.

The correlation between each stage of the project and the energizing moments is illustrated in the chart below:

Project Stage	Energizing Moment
1. The planning stage	1. First meeting with the grade seven participants–concept sheets & gameplay
2. The idea gathering stage	2. Analyzing original concept sheets for patterns
3. The mining stage	3. First visuals produced by artists
4. The story and character selection stage	4. Grade sevens seeing character visuals
5. The GDD stage	5. Game design document development with grade sevens
6. The game jam stage	6. Game jam - establishing mini-games idea
7. The prototype stage	**7.** Grade sevens playing prototype

Figure 11. Project Stage and Energizing Moments

From the perspective of Hermione Granger, Clementine, and I, energizing moments began for us when we initially engaged with the youngest participants. Clementine and I considered listening to the game concepts as they were being developed by the grade seven participants as the most engaging element. Hermione considered breakthroughs in the discussion about gender and leadership as most energizing. Energizing for the grade seven participants was the game-play session (Energizing moment #1. First meeting with the grade 7s). When the Montréal team looked through the ideas from the initial workshops with the grade seven participants in Toronto

and derived two storyline directions, another energizing moment was produced (Energizing moment #2. Analyzing original concept sheets for patterns). Once the story lines were established, seeing the supporting art for each storyline and seeing the character art for both Montréal members of the team and the Toronto team caused energizing moments on separate occasions (Energizing moment #3. First visuals produced by artists; Energizing moment #4 Grade sevens seeing character visuals). The most intense energizing moment took place during the Game Design Document (GDD) session when the youngest members developed the characters, plot, inventory, point system, and aesthetics of the game. Overall the game jam provoked high energy, but the strongest moments occurred when ideas flowed[17] between participants and when the final game structure was decided. Playing the final prototype brought on a high energy moment. This was likely due to the fun of collaborative game-play rather than excitement over the product itself. I make a distinction here to clarify what I suspect produced the high energy so that in future iterations of the project I can re-create the circumstances that may produce energizing moments.

Movement from abstract to real was key to motivating participants and maintaining interest in the project. Elements that were key to this "movement" were:

1. visuals;
2. face-to-face encounters;
3. engagement in creative process through collaboration;
4. major decisions established (storyline, game structure, and main characters)

Other factors contributing to energizing moments:

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[17] "Flow" here is defined by movement of an idea or concept from one person to another and back through dialogue.

5. collaborative game-play;
6. choice: working in groups on choice of game design details;
7. building ideas with others;
8. face-to-face collaboration.

Future project actions:

- develop communication strategies with the youngest participants;
- develop visuals as early as possible and share with the entire team—refer to them often and post them everywhere;
- build in many opportunities for creative collaboration and develop all game concepts collaboratively;
- celebrate milestones with the entire team to draw attention to major decisions like storyline, characters, and game structure;
- provide opportunities to play games and invite students to find related games to play.

The second research question (What deflated motivation and interest?) refers to the challenges encountered during the project. As mentioned, communication with the grade seven participants was an ongoing struggle. Attempts to engage with the grade seven participants from a distance through online environments and communication tools was not successful. It is possible that within the right online environment, established with all participants, online communication may have worked. Face-to-face meetings played a significant role, fuelling energizing moments throughout the project. Perhaps moving to an online environment would have been a possibility after several initial face-to-face meetings in which one or more energizing moments took place.

Related to the communication struggle were the long lapses of time between contact with the grade seven participants. During the focus group the grade seven participants indicated they thought very little about the project in between visits to the partnering school. The Montréal team by contrast was fully embedded in the project through regular meetings. I struggled with this detachment because I had imagined that the grade seven participants would be involved in every decision that was made regarding the game. Instead, the grade seven participants created the GDD and the interns used it as a resource to create the game. AoW remains an interesting project regardless, but I look forward to future iterations of the project where the entire team has easy access to the project through better communication.

What guidelines could enable similar projects in the future?

This case-study provides a model upon which to base future iterations of this and other such projects. As discussed in Chapter 3, no two projects will ever be the same. This case-study and pilot project, however, provides a basic project structure with stages of the project and key advice so that future iterations of this project could potentially move forward more smoothly. The following structure was derived from the AoW project as it actually took place. These guidelines also appear in the appendix as a stand-alone reference sheet (appendix H). The elements written in italics are recommended adjustments based on my research reflections:

1. The planning stage (interns establish themes and create workshop *with* grade sevens);
    - *Develop main communication strategies with all participants*
    - *Create a project website or information hub with all interested participants.*
    - Explore a theme of interest. *Invite youngest participants to participate.*

- Literature review including rounding up video games related to the theme. *Invite youngest participants to participate.*
- Planning of workshop (key components: theme exploration through activities and discussion; play related video game/s; reflect on video games; work on concept sheets; s*uggest teams, but students can choose to work alon*e; share main game concept ideas.
- Practice workshop for local gaming community for feedback.
- *Celebrate: other strategies can be established as "celebration", but post some details online (ie/photos of practice workshop) at end of each stage at the minimum.*

2. The idea gathering stage (concept sheets):

- Conduct workshop*. play more than one game example.*
- Create game concept sheets *in pairs or groups*.
- Celebrate: post details online. E*mbed a way for all participants to receive notice of news*.

3. the mining stage (establish two story directions with artistic representations):

- Tally main game structures and moods. choose most popular ones.
- List any unique or striking details from concept sheets.
- *Involve youngest participants in above two events* or *share above two findings with youngest participants immediately for feedback.*
- Build two storylines based on these details - *involve youngest participants in process* or invite them to vote on their favourite.

- Establish main character details drawn from concept sheets (age, form ie. human, alien, etc.).
- *C*reate corresponding visuals. *Share the visuals immediately, post them, online (we did this, but ensure students have opportunity to see)*
- Celebrate. Post details online*. Ensure participants receive updates.*

4. The story and character selection stage:
    - Final directions decided by youngest participants.
    - Celebrate. Post details online*. Ensure participants receive updates.*
5. The GDD stage (characters, plot, point system, inventory, aesthetics);
    - Students choose Game Design Document area of interest.
    - Students provided with guide sheets with examples from actual GDD and a mission (see appendix E).
    - Students present their section of GDD.
    - Any adjustments made to synch up details.
    - C*elebrate: post details online (ensure participants receive update).*
6. The game jam stage:
    - Game jam team have two days to develop 2-3 game pitches and present to team at the end of each day or first thing in the morning. *All participants invited to participate.*
    - Game jam team has access to wide variety of paper and video games
    - Receive feedback from rest of team.

- Team votes on final vision or sends game jam team back to drawing board if a choice cannot be made.
- C*elebrate: post details online. ensure participants receive updates.*

7. the prototype stage:
    - Students play the game prototype.
    - Focus group format - questions asked pertaining to game and/or research.
    - Focus groups approves game or makes suggestions for changes.
    - Celebrate: post game online. Ensure participants receive update.
8. *Officially launch game for school community and beyond.*

A Few Final Thoughts

The following are a few final thoughts. The unexpected and most energizing event that took place during the development of the GDD in Toronto (Energizing moment #5. Game design document development with grade sevens), provided a significant motivational boost for the overall project and produced the key details of the final game itself. This encounter took place face to face, and took the form of a creative workshop wherein the GDD was created by the grade seven students. The GDD was created over two class periods (approximately two hours total). There were no problems ensuring that the characters, plot, aesthetics, point system, and inventory made sense to one another. At another school or in another context students may have to establish overt strategies for collaboration. Given that the idea of affinity spaces has been developed through observation of online informal learning environments, classrooms as affinity spaces may have something significant to offer to face-to-face, collaborative creative work. This idea will be further explored in the discussion of affinity spaces in the following chapter.

Chapter 7

Analysis Part 2: Arcade Our Way as a Nurturing Affinity Space

This chapter addresses how to improve the project prototype, and tailor future iterations of the project to leverage the impact of the project on all participants involved. Through the lens of affinity spaces suggestions are made for specific improvement towards a more powerful progressive learning space. In order to accomplish this, I discuss how AoW relates to the fourteen features of nurturing affinity spaces described by Gee and Hayes (2012). The following section of this dissertation is organized according to each feature. Gee (2005) explains that a classroom situation can involve only some aspects of an affinity spaces and that this is an improvement compared to most schools where traditional education dominates. Gee and Hayes (2012) explain the challenge:

> It is possible to implement these features in face-to-face groups, but it is likely to be more difficult, due to institutional constraints, pre-existing status differentials, and even geographical boundaries that prevent people with common interests from coming together. (p. 30)

In addition, Gee (2005) indicates that these individual features also exist on a spectrum where they can be weaker or stronger. For example, "many different routes to status" will be weaker if participants only seem to gain status and respect within the group in only one or two different ways. Each of the features of nurturing affinity spaces are considered in AoW through reflections about the role it played within the project. In the final section of this chapter, each of the fourteen features are ranked in order based on their relative strength, and written in relative font size where the largest font represents the strongest features and the smallest the weakest. These

features were ranked using a 5 scale rubric scoring each of the sites (Montréal, Toronto) separately. The scores were then combining for an overall ranking (see appendix F1 for the rubrics). This approach is further explained in *The Fourteen Features of Nurturing Affinity Spaces Ranked According to Relative Strength* section at the end of this chapter.

In this chapter when I refer to features or features of a nurturing affinity space or features of an affinity space, I am referring to AoW according to the list of features of nurturing affinity spaces outlined in the theoretical framework in chapter four on pages 71 - 72.

AoW as a Nurturing Affinity Space

Common Endeavour is Primary (Versus Race, Class, Gender, Disability)

The AoW project was built around the common endeavour of developing a game about alternative forms of leadership. The Montréal team came together because of the endeavour. Each of the participants was looking for video game related project opportunity. Gee and Hayes (2012) explain that when the endeavour is the primary element that brings people together, other forms of relating based on identity such as race, class, gender and abilities become less dominant. This was the case with the Montreal team but working with the grade seven participants the common endeavour was somewhat convoluted. AoW was developed with the intention of offering a video game design opportunity specifically to girls, so gender was also a primary motivator behind the project. The common endeavor in this case, though the students chose to participate in the project (two students opted not to), was nevertheless somewhat externally mandated, given that the students did not come to it entirely of their own accord, as they typically would in an online affinity space. Online affinity spaces are generally sought out by those who enter the space, for reasons driven by their own interests, passions or curiosity (Gee & Hayes,

2012; Gee & Hayes, 2010). If the project were offered as a club at lunch or after school, it would have provided a situation that would have more purely been the choice of the students.

Schools can conceivably be the place to provide a wide variety of real-world opportunities for students to come together over a common endeavor. In their book *Women and Gaming: The Sims and 21st Century Learning* (2010), Gee and Hayes share many stories about people who discover their passions through access to affinity spaces, unexpectedly. The story of Jade for example, is about Tech Savvy Girls Club (TSG), that started by offering a space to play *The Sims*. *The Sims* is a simulation where the player controls characters who go about living their everyday lives. Jade was in the club despite not being very interested in playing the game. The facilitators one day pointed out that players could create their own fashion designs for their characters. This was the catalyst for a passion that was lit in Jade, who began by figuring out how to customize her own designs for her characters. This interest grew into designs related to other aspects of *The Sims* such as interior design. From here she developed an interest in design endeavours within the three dimensional world. She began customizing for others in the club and as this was all taking place her interest in computers grew along with her realization that understanding computers brings power. Our passions are often ignited in situations where we do not expect it to happen, so opportunities to participate in many forms are important. During the focus group discussion at the end of the AoW project, two students thought they might be interested in a future related to game design (Audio transcript, December 7, 2015), where prior to the project this possibility was not a consideration for any of the participants (Questionnaire #1, November 14, 2014).

Recommendations: common endeavour is primary (versus race, class, gender, disability). The recommendation is for the project to involve the full team in all decisions from the beginning to deepen the collective connection to the topic and project, therefore more truly enabling the common endeavour to be primary. This necessitates that the team be more closely situated geographically, and that the method of communication is established and tested prior to the the project getting started. As suggested by the youngest participants, for these communications to really take hold, they should be through a platform that they use for the most part already in their everyday lives so that integration is seamless. The group should work together to make the decision and whatever platform is chosen for communication. It should be tested until everyone is able to integrate it within their everyday practices. Following this, establishing the theme to be explored and some form of environmental scan and literature review based on themes of interest could be conducted involving anyone interested, using approaches discussed collectively. An online platform established at the beginning by all, would mean that resources could be compiled and made available for all to see. This would contribute to many other aspects of affinity spaces, particularly #7: "The use of dispersed knowledge is facilitated."

Affinity Spaces Are Not Segregated by Age

This aspect of affinity spaces is probably the strongest and potentially the most powerful feature of the AoW project. Corralling students by age for most of the day fails to reflect the important learning opportunities that can take place within our everyday lives outside of school. This is particularly true now that we can connect and collaborate with others through online participatory culture[18] (Jenkins, 2009) where age is less of an automatic indicator of who learns

[18] Affinity spaces are an example of participatory culture.

and who teaches or leads. Spaces for such interactions that are not limited by age, ability, experience or cultural background are important in our everyday lives, and have rich learning potential for educational settings. As Dewey has argued, education should be based on active experiences and these experiences should involve choice and input by those involved. The wider the variety of quality experience people have, the more we have to draw from when we make future decisions, and as we grow and build our perspective. The wider the age range of people with whom we can talk and interact the more socially connected and responsible we can become (Dewey, 1938/1998).

Within traditional educational contexts, the idea that learning takes place in rigid developmental stages dominates the structure of the school environment. Outside of school, work, family and community environments generally consist of a mixture of ages. In school, students close in age, spend most of their time together with a small selection of adults throughout the day, present with them typically one at a time. Exceptions to this rule take place of course, when classes or schools have assemblies, guest speakers, field trips and clubs. Age segregation in schools contradicts the way learning happens in our day to day lives outside of schools where communities are composed of people of all ages. The same is true of workplaces where ideally it is important for people of all ages to know how to collaborate and work together (Resnick, 1987; Gee, 2003; Jenkins 2009, Mitra, 2014). The intergenerational element of AoW is its core strength and can be further harnessed in future iterations starting with closer, more regular contact with the youngest members of the group, so that all ages can benefit more deeply from working and learning together.

Intergenerational learning and mentorship. Intergenerational learning throughout the project was demonstrated and observed most overtly in the direction of Nancy Drew to interns, however, mentorship flowed in both directions as Nancy Drew and I learned from interns, and the interns, Nancy Drew and I learned from the grade seven participants. I spent the most time observing mentorship flow between Nancy Drew and the interns. A frequent occurrence between them were questions based on career decisions. Hermione Granger regularly asked Nancy Drew about projects she had been involved in in the past, and even applied for a similar project and sought out information to help guide her decisions in this respect. Interns would often ask Nancy Drew and myself questions about a variety of things unrelated directly to AoW. Lisa Simpson for example, became interested in figuring out how grants work so that she could fund her own project ideas. Prior to an AoW meeting, she asked me several questions related to this topic, for example: Do you pay yourself if you started the project? How do they [grants] work? Do you have to write a report? When she asked me these questions, I explained that no two grants are the same, and given past experience with a wide variety of projects and grants, I was able to provide an array of examples of how they can work. Following the meeting about *Ghost Hotel*, Lisa Simpson returned to the question of grants and asked Nancy Drew where to look for funding for a game, and shared and received feedback about a vision she had for a feminist game focused on influential women that you would learn about by selecting different characters to play throughout the game (audio transcript, Aug. 28th, 2015).

There was also an impactful flow of learning and mentorship between the interns and the teacher of the grade seven participants with whom we worked, and also between myself and the teacher. The teacher discussed the school context as well as her thoughts about education more

broadly with the three of us (Audio transcript, November 14, 2014). In addition to this, I often engaged in conversations with the teacher that helped deepen my understanding of the project and her students. For example she compared the ugly brown novel that was amazing but students would never read it, to an interesting video game with terrible graphics (audio transcript, November 14, 2014). She also pointed out the way the grade seven participants were somewhat bound to equating leadership to popularity when they had originally imagined Violet gaining strength as a leader as more ghosts followed her on social media (audio transcript, April 1, 2015). Many of these side conversations took place within the pockets of time that surrounded our more official meetings. Because this was the case, many of these conversations initially went unrecorded. Through my field notes over time, I began to realize that this was a pattern, and hence to recognize the significance of these side conversations. This finding led me to think of Jane Jacobs, urban activist and critic of city planning, who explained that the exchanges that happen in neighbourhoods where neighbours of all ages and backgrounds interact and share knowledge and experience about any number of matters, including child-rearing, are important sources of support and learning, and are vital to healthy communities (Jacobs, 1992). Such neighbourly exchanges can now happen across the world, as exchanges and collaboration also take place now between a wide variety of cultures globally, and between people of a wide variety of ages through technology. This is essentially what is happening within affinity spaces, and is what I began to realize was happening through AoW. Such opportunities for informal learning across ages and across geographical locations contribute to healthy overall communities. The classroom can be considered a neighbourhood and those who beam into the neighbourhood from elsewhere, be it within the immediate community or beyond, have the opportunity to become the

neighbours who share experiences and knowledge casually in various ways that enable healthy neighbourhoods. When AoW ended, and the neighbours moved away, these positive experiences and exchanges remain with them. This is also the essence of Dewey's (1938/1998) idea of experience and education where the affects of our experiences remain within us.

Mentorship as an important element of leadership was also discussed in relation to the game. During the first workshop with the grade seven participants conversation about leadership lead one of them to explain the importance of positive role models to leadership. She described her older sister as a positive role model stating:

> I see like her doing really good things, and it makes me want to be more like her. So like if you have an older or even younger role model, it could be your teacher or just a friend that you have, so kind of, it's not just you're family but everybody you know - it's kind of like peer pressure to do that, if you and your friends were doing something bad than maybe they might pressure you to do something bad too, so you have to know whether they're a positive role model. (audio transcript, November 14th, 2014)

The game subject itself created space for dialogue around mentorship. This thought described how our behaviours are contagious and positive role-models help us learn how to do things in constructive ways. In bringing people together to discuss leadership, we were also learning, through dialogue, how to develop related leadership skills.

Civic engagement. Dialogue from a Deweyan perspective requires openness and reflection, and through this process people are affected in some way. Dewey envisioned schools as communities where people engage and live and grow through dialogue. When children learn to be a community like this at school, they learn to be a community like this outside of school. AoW

brought the participants together to collaborate through meaningful work. The project was accomplished through dialogue and collaborative decisions throughout the game design process. Dialogue as an important component of the game design process supported working together as a community and the development of civic engagement skills.

Elders and the wisdom of youth. This sub theme of the nurturing affinity space feature "affinity spaces are not segregated by age" (Gee & Hayes, 2010) relates closely to previous reflections about civic engagement, and the importance of having opportunities in school to engage in a wide variety of ways with a wide variety of ages. Typically, at least in mainstream Western culture, the assumption is that adults know more than children and are more intelligent. While it is true of course that adults have had the opportunity to gain more life experience than children and youth, children and youth also have a lot to offer adults and elders as well. Very young children learn new things every day, and through their lack of experience can help us to see ourselves and our world from new perspectives. Children ask great questions that cause others to reexamine things that are taken for granted or seemingly obvious. They also absorb much of what is around them and can reveal ourselves back to us in important ways. Youth tend to challenge conventions and develop sub-cultures in opposition to the society they are born into because they are able to view it with fresh critical eyes, and want to carve out a space where they can be distinct within a pre-existing order of things. Similarly, people who try something for the first time can offer a fresh perspective to those who have become accustomed to a particular phenomenon. For example, someone who tries a particular video game for the first time could shed light on certain approaches or new strategies because they are not yet bound by the conventions of the game. Or they may want to do something specific yet have not acquired the

experience necessary to know how to realize their vision. In this case, they can turn to a veteran who can easily explain the steps which are a given for someone who has been engaging with the game for some time. Bringing people of all ages and backgrounds together, as in the case of affinity spaces, can provide surprising ruptures in everyday perceptions or procedures, and teach people about things from a different perspective. During AoW the Montréal team made incorrect assumptions about the way young people communicate using technology. As a result we had insight into what technologies are used and appreciated by this group of girls (texting versus email; Instagram versus Wikispaces or Facebook). I was fascinated to learn about games they were interested in that I would never have come across otherwise, such as *Can Your Pet*, all of which they enthusiastically shared with me. We were exposed to characters that each generation valued as leaders, of which there was cross-over between the youngest participants and interns, and less with Nancy Drew and myself, providing opportunities to expand knowledge that may or may not be remembered or pursued later. I for example was intrigued by *Can Your Pet* (Play Can your pet, n.d.) and played it.

Depending on socio-economic situations and access to technology, we now live in a time where typically young people are very comfortable with computer technology in terms of using phones and devices for various purposes in their everyday lives with facility. Though the point has already been made that young women have less access to computers and video games, and are gendered to take less interest in technology, most youth for example can jump right into a video game that is new to them and figure out how it works , as this group did when they played the McDonald's game. However, research has shown that they often have difficulty articulating opinions about games (Kafai & Peppler, 2007) and thinking critically about them (Jenkins, 2009).

As is explained in the series forward of the book *Hanging out, Messing around and Geeking out: Kids Living and Learning with new Media*, (Ito et. al., 2010): "Although specific forms of technology uptake are highly diverse, a generation is growing up in an era where digital media are part of the taken-for-granted social and cultural fabric of learning, play, and social communication" (pg. xi). This close relationship with technology is something that adults can learn from, particularly those of us interested in helping education to evolve with the experiences of youth. Youth on the other hand, through what Jenkins (2009) calls the transparency problem, can really use guidance from adults towards reflecting more deeply about technology and of thinking more critically about its implications. The term digital divide has been used to describe the division between the new generation that has not known a world without digital media, and the rest who have (Pinkett, 2000). This is a clear indication that there is much to learned between generations. The AoW project, simply by bringing generations together to work collaboratively on a digital project, invited conversations that bridged the digital divide, and provided opportunities for learning through mentorship flow in all age directions.

Recommendations: Affinity spaces are not segregated by age. Intergenerational learning and mentorship carried the strongest impact related to this feature of nurturing affinity spaces. I think this should be the focus of research in future iterations, and that more opportunities for casual encounters outside of official meetings and workshops should be factored in. Running the project through a long-term partnership with a school will optimize the intergenerational knowledge exchange.

Newbies, Masters and Everyone Share a Common Space

Video games are multi-modal texts (Albers & Sanders, 2010). This means they embody many different forms of communication at once, including audio, visual, and text. They are complex media texts because they are multi-modal, and interactive. They typically require a narrative, aesthetic choices, rule building, and programming. This means they bring together many skills. People within a game design based affinity space will have more and less experience with these various dimensions, thus providing many opportunities to be both newbies, masters and, everything in between within the affinity space. One could be new to game-design, but a master related to the game-theme. They could be master story-writers, yet new to sound-effects and music.

Game design and game play are special in the sense that one can learn in a myriad of ways through each act. The school Quest to Learn in New York City is based on the premise that game play and game design provide an engaging and powerful forms of learning (Salen, Torres, Wolozin, Rufo-Tepper, & Shapiro, 2011) Game design can be used to assess understanding of an issue or topic. To create a game about something, one has to have a deep understanding of the something to translate it into a playable format. Through game-play, as Gee (2003) has pointed out, many good video games teach us things, simply by being games, because we have to problem-solve, take risks, and collaborate in various ways. Like good works of art, many games help us to think in new ways or to see the world differently, and have the potential to be an even more powerful vector for spreading ideas and perspectives due to their interactive nature. Typically, people enjoy playing all kinds of games, and games can have a wide array or purpose. Bringing people together to design a game, and to play related games, as we did through AoW

whether they are new to video games, master players of video games, or have dabbled in story-telling, character design or music composition, a game-making affinity space can provide a rich opportunity for learning on many levels. Individuals can alternate between being masters and newbies, and therefore to deepen old skills and/or move beyond being newbies related to various elements game-design.

In AoW there were many dimensions involved in the game design process. These dimensions involved interns in both research and pedagogy. The interns conducted a broad literature review related to gender issues and narrowed down their research topic to gender and leadership. They created a workshop about leadership and games for the grade seven participants. Though the interns were not new to conducting research about a topic, they were new to the idea of creating a rubric to assess the strength and quality of their findings according to a variety of dimensions. They were also new to design and facilitation of a workshop about game design for young girls. Nancy Drew and myself as a combined force were masters in the areas of education, programming, management, engineering and visual art, but also newbies on a wide variety of fronts. Video game design for example was a completely new endeavour for me. As a result of the project we all learned new things, and therefore evolved from newbies though we may not necessarily have become masters. We built new types of knowledge and deepened our knowledge by assisting others. I began learning about the game-making program *Unity*. I expanded my knowledge of video games and deepened my own teaching skills by guiding others in their teaching. Hermione Granger and Clementine had no previous teaching experience and developed a basic set of teaching skills and confidence in those skills by developing and leading the initial workshop with the grade seven participants. Hermione Granger and Lisa Simpson had

never programmed a game. By the end of their internships they had created prototypes, where previously they had never done this. Lisa Simpson transformed her tacit programming knowledge into language by describing the process to the grade seven participants, who at least claimed in the focus group to have picked up some new information (audio transcript, December 7th, 2015). During the initial workshop, the youngest participants reflected more deeply about what it meant to be a leader, and came up with practical examples of how to demonstrate leadership behaviour. These are examples of the more obvious things that were learned through the project.

Recommendations: newbies, masters and everyone share a common space. A more nuanced understanding of what was learned should be more deeply examined from the perspective of the participants through project journals in future iterations of the project.

Everyone Can Produce and not Just Consume if They Wish. Some portals are strong generators

Gee (2005) also refers to this feature as some portals are strong generators. This is important to keep in mind because theoretically, when affinity spaces are considered through the lens of semiotic social spaces[19], this feature speaks directly to the strength of the project as a progressive learning environment where at its core, participants have the opportunity to affect the internal grammar of the space. When portals are strong generators, students have the opportunity to contribute to the environment by producing resources as well as by structuring the experiences that can take place. Participants also have choices in terms of what they want to do and consume. During AoW students had choice, but in a more superficial way.

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[19] See affinity spaces section in Chapter 3.

Production is a central element to this project because the group came together to create a a media-production in the form of a video game. Media literacy originally focused on thinking critically about consumption, but the new media literacy movement has more recently emphasized the importance of media production in terms of media-literacy (Jenkins, 2009). New media literacy makes media-production a priority as this is thought to be the best way of developing the critical-thinking skills necessary to engage with the onslaught of media in its various forms (Albers & Sanders, 2010; Gee, 2007; Kafai & Peppler, 2011; Peppler & Kafai, 2007; Sanford & Madill, 2007). There were opportunities to both consume and produce media through the AoW project. However the aspect that renders these options superficial is the fact that participants should have the option to produce or consume "*if they wish*"[20] (Gee & Hayes, 2012). Gee and Hayes (2012) describe nurturing affinity spaces as a place where people are "encouraged, (but not forced) to produce and not just consume; to participate and not just be a spectator" (pg. 24). During AoW, students had the opportunity to engage in activities and discussion where they had the choice regarding the degree to which they chose to listen and watch or engage and discuss. However, this being a formal learning environment, I think students were habituated to participate. Though students were reminded regularly from an ethical standpoint related to the research that they could opt out at any point for any reason, I think students would apply this option to events if they were made to feel uncomfortable, more so than simply not joining an activity because they did not feel like it or were not interested.

An example of a specific activity was led by Hermione Granger during the first workshop. She invited the grade seven participants to think of someone they would consider a leader and

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[20] Detail italicized here for emphasis

write down on a cue card the strongest quality of this leader. They laid the cards on the floor and placed a stick on the two they felt were the most important. Everyone participated. In a classroom environment, generally, students are habituated to participate (though often the partnering teacher in this context provides options, the options still generally come from the teacher). It would likely not occur to them to opt not to participate. Within the wiki space by contrast, this type of expectation simply was not there and participation was weak. Though I do think the main issue was the choice of technology, this is also likely an indication that on their own time, most of the students simply would not have participated in this project. If AoW is meant to offer an affinity space in school, this element of the project requires significant improvement.

Another challenge interfering with participants choice to both produce and consume, is that both the interns and I fell into the habits of traditional education during visits with the grade seven participants. During the first workshop students for example wanted to continue playing the McDonalds game, but I suggested they work on their concept sheets. I generally controlled the timing of the activities, and told people when to move on to the next task. The interns and myself followed plans and methods that were too rooted in traditional education to properly address the "if they wish" aspect of this feature.

Recommendations: Everyone can produce and not just consume if they wish. In future iterations, I would suggest that workshops be less structured, and that all participants are involved in the actual design of the workshops. Conceptually related to Gee's description of semiotic social spaces, portals (in this case the workshop plans) would be generators, if all participants were involved in the planning. I think initially at least, it would make sense to move

the project out of the classroom and into a lunchtime or after school time slot in support of learning to break these habits.

Though there were choices involved in the project to some degree[21], these choices were generally superficial for the grade seven participants. The Montréal team had choices and there was an openness to the structuring of both meetings and the project itself that welcomed suggestions. The exception here involved the most powerful energizing moment related to the project when the grade seven participants were developing the game design documents (GDD). They chose the area of the GDD they wanted to work on (characters, storyline, etc.) Overall however this was a weak affinity space feature in AoW. Choice should become the default habit in AoW as an affinity space. This would require the freedom to leave the space at any point, or to lurk, watch and explore the space at one's own will. A more appropriate set-up in a physical space could involve for example areas where participants can post related images and text. Participants could spend time manipulating the space or looking at various types of posts by others and providing feedback. It could involve an online environment as well, but I think the idea of a physical space related to the project is an important contribution that schools specifically, conceived as affinity spaces can contribute to learning. A longer term relationship with a school over time would enable the allocated physical spaces to become real working studios. Over time, students in the school could come to discover the space of their own accord. This could also involve opportunities for the public school students to have access to a space within the partnering university. In the physical spaces participants could post drawings, poetry, character

[21] For example youngest participants chose to participate in online and offline discussion. They chose to jump right in and play the McDonalds game. They produced the main story lines and game details.

drawings, fan fiction, and alternative narratives related to the project. These ideas would allow more options for forms of production and consumption within the affinity space.

Content is Transformed by Interaction: Internal Grammar is Transformed by External

This feature is also worded as "internal grammar is transformed by external" by Gee (2005) when theorized through the concept of semiotic social spaces. This is important to keep in mind because theoretically, when affinity spaces are considered through the lens of semiotic social spaces[22], this feature, like the preceding one, speaks directly to the strength of the project as a progressive learning environment where at its core, participants have the opportunity to affect the internal grammar of the space. This aspect of affinity spaces was a powerful feature of AoW, at least as it related to the game-design. The content of the game was transformed through ongoing interaction between all participants. What will be important moving forward however is to create more avenues for the youngest participants to be involved directly in all game design decisions. This was not possible due to the geographical distance and the lack of connection through technology. The game is based on the game design document built by the grade seven students, and the mini-game structure format came from them. They were not directly involved in the more nuanced processes for coming to decisions like creating themes based on their concept sheets.

As mentioned in the preceding feature of nurturing affinity spaces, if internal grammar was transformed by external, pedagogical structures could involve students more fully in contributions to the learning environment both physically (the set-up of the space) and in terms of the experiences and activities that took place (curriculum design). One detail of note however is

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[22] See "affinity spaces" in Chapter 3.

that although the grade seven participants did not directly participate in the design of workshops and activities, there is a responsiveness on behalf of some educators that can create a space for external grammar to transform internal. A responsive teacher will often make changes to the lesson plan in situ, depending on subtle and not so subtle cues and feedback they receive from students. Internal grammar can be transformed by external grammar in this way, and this did take place at least on one occasion during the first workshop. I steered the initial workshop away from the original plan when I noticed that Clementine was talking to the students at one point for too long without involving them in dialogue. I could sense that they were becoming restless and disconnected.

Aesthetic-empathy is a capacity I have written about with Suzanne McCullagh (Jackson, McCullagh, 2014). It is similar conceptually to the way in which powerful orators feel a room and are able to alter their delivery to more deeply engage or appease an audience. Such sensitivity is important for learning contexts where teachers require plans, but also where openness is necessary as is being responsive to students, providing space for altering the course of curriculum (Jackson & McCullagh, 2014). Students can also be more or less involved in this process. During the workshop I intervened to engage students by asking for suggestions of strong female leaders in films, television shows and stories. The grade seven participants had many ideas about this, and spoke enthusiastically in defense of their choices, of which there were seventeen in total, further deepening our understanding of what a leader can be through practical examples. This kind of responsiveness on behalf of a teacher is not a detail taken into consideration by Gee and Hayes (2012) in the discussion of “content transformed by interaction”,

but in formal classroom spaces, this is an important yet under explored pedagogical strategy that enables internal grammar to be transformed by external grammar.

Recommendations: content is transformed by interaction. What will be important moving forward is to create more ways for the youngest participants to be involved directly in all game design decisions. Though responsiveness on behalf of teachers enables student involvement in content transformation in a sense, more entry points for direct participation on behalf of the youngest participants will be necessary to strengthen this feature of AoW as nurturing affinity space. This is also important because most of the face to face structures implemented in the classroom with the grade seven participants were more or less typical pedagogical strategies that imposed actions on the students rather than allowing for choice or the option to structure their own ideas for action.

The Development of Both Specialist and Broad, General Knowledge are encouraged, and Specialist Knowledge is Pooled

During the final focus group meeting with the grade seven participants (grade eight at this point), Lisa Simpson was present via Skype and shared her specialized knowledge about the software *Unity* used to create the *Ghost Hotel* video game prototype. Students had the opportunity to learn about many aspects of *Unity*, a software not previously used by the students. This experience was similar to an online tutorial, but live. Important here, as Gee and Hayes (2012) point out, is that experts are never cut off from the wider community. In the case of AoW, specialist knowledge, in particular programming using *Unity*, was shared at the end using *Ghost Hotel* as the example. This took place over Skype with a shared screen. The students had enough background in programming to contextualize what was being explained by Lisa Simpson. As she

spoke I asked if they were able to follow and there was general agreement that they could. I also created space for questions, though none were forthcoming, so it is difficult to gauge the level of understanding with certainty. Lisa Simpson also went further, explaining the programming behind the game. She really took them through the creation process on a conceptual level as well, a task which involved negotiating their ideas with the reality of game design with limited time and with a team of two under the guidance of Nancy Drew.

The intention was for Tank Girl to be in attendance during the final visit as well to share the tools that she used to create all of the art for the game. This experience would have been valuable as an opportunity to develop specialist skills for those interested, but Tank Girl was not able to come.

Recommendations: The development of both specialist and broad, general knowledge are encouraged and specialist knowledge is pooled. In future iterations of the project, having easier more fluid and long term access between all participants will be key to further enabling guidance and questions when desired on behalf of any member whether they share expert or broad knowledge. Gee and Hayes (2012) further explain,

> [I]n a nurturing affinity space, it is important that each person with specialist knowledge sees that knowledge as partial and in need of supplementation by other people‘s different specialist knowledge for accomplishing larger goals and sustaining the affinity space. Knowledge pooling is enhanced by the fact that everyone in the group shares a good deal of knowledge about *The Sims* and design. (pg. 26)

Also, in addition to live descriptions of tools and techniques, the creation of video based tutorials throughout the game making process would have been ideal so that people could access the information any time.

Both Individual and Distributed Knowledge are Encouraged

Distributed knowledge is the collective knowledge accessible through, in this case, the affinity space. It includes not only knowledge possessed by people, but knowledge stored in material on the site (or links to other sites), or in mediating devices such as various tools, artifacts, and technologies to which people can connect or network their own individual knowledge. Through the affinity space, such distributed knowledge enables everyone to collectively know more than they could on their own (Gee & Hayes, 2010). The overall AoW project allowed for people to know and do more than they could on their own, as the game itself is the product of this distributed knowledge. The youngest participants were very strong story-conceivers, and their ideas were fueled by their powerful imaginations. Integration between the concept of leadership and their ideas was not so forthcoming. The interns were able to integrate the theme with the ideas of the grade seven participants, and deliver it back to them through the game. The youngest participants could clearly see the connection between leadership and *Ghost Hotel,* and explain the connection between the theme and game in a few different ways. They struggled to accomplish this integration on their own.

Further demonstrations of distributed knowledge occurred between interns. Easy access by all participants to spaces where they could gather images, links or relevant information for the project, from their perspective would have been ideal. During phase 1 of the project, Hermione Granger and Clementine chose to use Tumblr to round up items of interest related to the project

broadly (for example images and articles related to game, gender and leadership). Later, Lisa Simpson and Tank Girl chose to use Pinterest to hone-in on aesthetic details related to the final prototype. This was a highly relevant creative vision exercise and is also an example of a platform that would allow for connection and access to distributed knowledge. A further important aspect of distributed knowledge related to creativity, was that the game jam took place in a lab at Concordia University where there was access to paper based games, computer games and various gaming systems. The choices for which games entered this space were made by masters in the world of game studies. Access to these games was really important to the creative process during the game jam. During the game jam, the team (Lisa Simpson, Tank Girl and Captain Holt) attempted to make *Ghost Hotel* into three different genres of game: a card game, an adventure game, and a series of mini-games. At the beginning of each foray into the relevant genre they played examples of these types of games for inspiration. Access to games was an important component of distributed knowledge.

Another important example of both individual and distributed knowledge came from Nancy Drew's experience making games. She had a significant understanding of what could realistically be accomplished in limited time both from a technical perspective and in terms of guiding the goals and activities of the interns. Drawing on Nancy Drew's previous experience with game-design, everyone involved in the project was able to use resources that had been built and created through other games made by Nancy Drew's video game company (game concept sheets, game design documents, and character pitches). These examples of distributed knowledge were very important to the integrity and completion of the overall project.

Much of the understanding of leadership on behalf of all participants, including strategies for accomplishing this goal in everyday life, came from distributed knowledge of the group. Participants reflected about leadership through dialogue, activities, and role-play. During the role-playing session the grade seven participants worked together to solve leadership challenges. This involved for example, the grade seven participants being challenged to come up with a solution for being a small, soft-spoken camp-councilor, who needed to get the attention of a large group. Their practical and creative idea was to jump on the back of a taller councilor to make the announcement. There was also a conversation in the wiki about favourite leaders from fiction where all interns, Nancy Drew, myself, and some grade seven participants shared their choices and reasons. A similar conversation took place with all of the grade seven participants during the impromptu conversation about leaders during the first face to face visit. The leadership qualities derived from these exercises provided access to practical examples of how to enact leadership. In this context individual and distributed knowledge come into play in a wide variety of ways, both anticipated and unanticipated.

Recommendations: Both individual and distributed knowledge are encouraged. More opportunities for posting and sharing knowledge will be important. A physical space with games, and resources that can be altered by all participants is also recommended.

Tacit Knowledge is Used and Honoured

This is the type of knowledge that is embodied and demonstrated through action. It is the type of knowledge that cannot always be explained or put into words (Gee & Hayes, 2011). Examples of tacit knowledge would be the ability to play a game or to draw a picture. Tacit knowledge happens through trial and error and experimentation. Tacit knowledge opportunities

could be further exploited. Students used their tacit knowledge of video game play during both play sessions of the case-study and pilot project: the first session, when they took turns playing the *McDonald's Video Game*, and the second session, when they played *Ghost Hotel* on the large screen. How to play these games was not explained to them. They figured it out as they went. Tacit knowledge was also used by Hermione Granger and Lisa Simpson as they were learning to program. Lisa Simpson did a great job of verbalizing her tacit knowledge of the programming of *Ghost Hotel* for the youngest participants.

Recommendations: tacit knowledge is used and honoured. In future iterations of the project, opportunities to create and post demonstration based tutorials would strengthen this element of nurturing affinity spaces, as would more opportunities to play both video games and paper games.

Many Different Forms and Routes to Participation

Gee and Hayes (2012) make the point that in North American elementary and high schools, students in a given classroom are typically required to do the same activities at the same time. Students cannot choose, for example, to just observe what happens in school or devote a day to tutoring younger students. They explain that in school, "appropriate forms of participation tend to be too narrowly defined." (pg. 28). Often this problem is caused by the constraint of having to evaluate students according to ministry mandated outcomes. AoW was not formally assessed (with the exception of Hermione Granger and Clementine), so there was a freedom from this type of constraint. Without this pressure participants have a freedom to participate as they wish. This freedom should be more overtly discussed and promoted within contexts where institutional habits likely make people feel more constrained.

Recommendations: Many different forms and routes to participation. Once appropriate communication modes are established, future iterations of the project should provide equal access to all forms of participation, leaving choices to the participants.

Many Different Routes to Status

Gee and Hayes (2012) point out that there are "many different routes to status" in a school environment. By status they mean respect and high social standing within the school community. This can typically be achieved through sports, arts, and Student Council, for example. However, the official rewards system in school is based on grades. In an affinity space, respect from the group emerges from recognition of one's work and one's contributions within the space, whatever they may be. A person within an affinity space could gain respect by excelling at a particular game, creating amazing avatars, making a tool that many people find useful, or writing in a way that other people enjoy. People are appreciated for the contributions they make to the community. AoW produced a few different routes to status. These came in the form of content design, game-play, and discussion. Students focused on creating content through the Game Design Document (GDD). They worked through ideas together. Those who tended to be the main idea generators (the ones who came up with the seed of the main creative concepts initially) became the main idea negotiators when groups came together to ensure their ideas were in synch with the larger picture of the game.[23] Status in this situation was demonstrated by the tacit selection by the group of the main spokespeople, though this is speculative at this point.[24]

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[23] For example, details about the main character's personality had to fit with her backstory

[24] It could just be the case that the main spokespeople were the pushiest or loudest, but I do think there was a connection between creative capacity and status/respect.

The student who beat the *Ghost Hotel* prototype during the final focus group session received status in the form of cheering and congratulations because others before her could not win. Many students shared powerful insight about leadership during face-to-face conversations, which definitely gave them status in the eyes of the interns, who talked about it on many occasions after the workshop. Amongst the Montréal team, there were more possibilities regarding routes to status. Everyone was appreciated for what they brought to the table, especially the artists whose work triggered energizing moments every time it was revealed to the group.[25] Nancy Drew's advice was sought out on multiple occasions.[26] Nancy Drew and I were constantly impressed by the drive and proactive nature of the interns, especially Hermione Granger and Clementine, who essentially built the project from scratch.

Recommendations: many different routes to status. This feature can be improved and strengthened, particularly for the youngest participants. In future iterations of the project, when participants have more options for sharing interesting thoughts and discoveries through various online and offline platforms, options for routes to status will also be further extended.

Leadership is Porous and Leaders Are Resources

This feature of affinity spaces was a central tenet and powerful feature of the project in the Montréal context, but was not powerful enough in the Toronto context. We went to the grade seven participants because they are leaders in many ways, and their leadership perspective largely informed the game. In this sense they were considered leaders, but there were too few varied opportunities for them to step into and out of leadership roles. When they worked in groups

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[25] This is further addressed in the energizing moments section.

[26] See the subheading "Intergenerational learning and mentorship in affinity spaces are not segregated by age" above.

during each of the three visits leadership was porous between them. In particular during the GDD session where everyone contributed, there were individual group members who lead the negotiations between groups. However more porous leadership in relation to the adults involved in the project will be important moving forward.

Nancy Drew carried the weight of ensuring that the project did not grow so big that it could not be completed. She consistently had a strong sense of what could take place within limited time, particularly in programming, which is something no one else had the skill to gauge. When their ideas came back to Montréal to be sorted by the team there, Hermione Granger, Clementine, Nancy Drew, TankGirl, Mabel Pines and I figured out together how to work through all of their ideas to establish the main theme and mood of the game based on the most popular suggestions. We took turns pitching ideas about how to graft their ideas more deeply onto the idea of leadership, and inevitably the creative ideas of the grade seven participants mixed with ideas that came from the rest of the team.

I was in constant fear that we would overpower the ideas of the youngest participants. Because I visited them consistently, I had the clearest understanding of their ideas, and would constantly reiterate their ideas as a strategy for ensuring the content remained most significantly informed by them. The reason I was in constant fear, and what caused me the most discomfort throughout the project, was that the grade seven participants were not directly at the table representing their own choices and contributing to the decisions. The original idea was that they would be more directly involved in the game development, primarily through the online wiki-space, a plan that did not succeed for various reasons discussed in the project description and energizing moments analysis. When Lisa Simpson entered the project during the second phase,

she thoroughly read through the ideas of the youngest participants, became expert at describing them, and did a good job of integrating their GDD details into the mini-game structure. However, during the final focus group she often verbalized to the grade seven participants (actually grade eights during the final focus group) her discussion related to the game by saying "I thought we should" or "we thought we should", by which she was referring to herself and TankGirl. This wording demonstrates the disconnection between the final game-design decisions and the grade seven participants. This worried me because I felt the wording dismissed the rest of the participants. During the focus group, however, the grade seven participants explained that they felt a sense of ownership over the game and could recognized their ideas and concepts in the final game prototype. Nonetheless, Lisa Simpson's wording was uncomfortable to me because of the truth it expressed. The disconnection between the Montréal group and the Toronto group was problematic in the success of the project as an affinity space, but geographic and technological adjustments will overcome this significant challenge.

Analysis of the "leadership is porous and leaders are resources" (Gee & Hayes, 2012) feature of nurturing affinity spaces in AoW and the Montréal team reveals the great potential the project could have as a whole related to this feature. The undergraduate students had the freedom to lead and make decisions yet could always turn to each other, Nancy Drew, and myself when they were unsure of something. The interns Hermione Granger and Clementine guided the project direction from the beginning. Leadership overall was porous in various ways depending on what was taking place. The strengths of each individual were relied upon when relevant. For example, when it came to workshop construction, I shared my approach to lesson planning and we used this as a model from which to build the workshop. Nancy Drew and I, as well as game-

community members through the Technoculture, Art and Games lab (TAG) at Concordia University, provided feedback during a practice round of the initial workshop. Nancy Drew provided weekly feedback and guidance on computer-programming progress with Hermione Granger and Lisa Simpson. Nancy Drew made suggestions (in terms of tutorials to check out and software to use), but the interns ultimately decided their learning path for themselves. The Montréal team worked together to parse the original themes and moods described by the grade seven participants through their concept sheets. Nancy Drew suggested the plan for this meeting at the beginning and the team collectively tweaked details. During the actual working session, participants would step in to lead at different moments. I, for example, began tracking and tallying mood trends on the white board, and Hermione Granger wrote out the final two story possibilities. After this meeting, visual depiction of these storylines fell into the hands of the artists. In a more hierarchical structure, Nancy Drew would have been the person making all of the big decisions.

Recommendations: leadership is porous and leaders are resources. Nancy Drew's attitude and character set the tone for porous leadership. Technically, she could be said to have been in charge of the project. She conceived of the idea initially and was accountable to the professors from whom Hermione Granger and Clementine were receiving grades. If she had been more controlling she could have imposed strict deadlines and goals on the team. With the exception of some challenges towards the end of the project, Nancy Drew did not behave this way. She was able to ensure the project kept progressing, yet each individual person was autonomous. Her natural tendency to work collaboratively was important to the integrity of this feature of affinity spaces related to the Montréal team. Obviously, improvement in the Toronto

team would require geographic proximity and collective establishment of more appropriate online communication.

Roles Are Reciprocal

This feature is similar to the preceding feature, and also a strong core element of the AoW project. People took turns leading, being mentored, and encouraging others. In nurturing affinity spaces, experts want others to become experts as well. As Gee and Hayes explain (2012):

> Leaders in an affinity space, when they are leading, are designers, mentors, resources, and enablers of other people's participation and learning. They do not and cannot order people around or create rigid, unchanging, and impregnable hierarchies. Obviously there are degrees of flexibility in leadership, and while nurturing spaces foster respect for experts and those with more advanced skills, they tend towards less hierarchy and a view of leadership as "teaching," with emphasis on mentoring and providing resources, not necessarily instructing, though this can happen as well. (p. 29)

During meetings with the older members of the project in Montréal, the interns often had solutions to challenges and ideas about the direction the project should take. Nancy Drew consistently encouraged them by supporting their ideas. If they were stuck they would bring the challenge to the group to work out together. When required, Nancy Drew would suggest a change of direction if she recognized that something was not working or she knew there would not be enough time to complete a task. She would often suggest things like blog post themes, but she never forced these ideas. It was clear from the beginning, true to an affinity space, that Hermione Granger and Clementine in particular were highly committed and motivated by the

project and wanted to contribute in a variety of ways. Nancy Drew consistently invited the interns to problem-solve and to steer the project in the direction they chose.

There are two details about the project that contradict this overall role reciprocity. Nancy Drew had to provide reports to the professors and contribute to the final grade decisions which placed her in a position of power, regardless of whether she wanted to take it up that way. Another important detail is that there were some tensions regarding timelines towards the end of the project. During the last two weeks of the official phase 2 internship in August 2015, Lisa Simpson ceased to communicate clearly. She made changes to her schedule without communicating these changes to the rest of the team in advance. Because this affinity space was based on the achievement of a particular common goal, communication was important, especially when it came down to deadlines. Lisa Simpson also became less consistent, clear, and communicative about the final direction of the game. When this happened, there was a reversion to hierarchical boundaries, where Nancy Drew imposed more rigid structures so that the quality of the project was not compromised. In a typical online affinity space many people contribute to the space in many ways. With AoW, this is true to a degree. However, there was also an overarching goal that had to be achieved. Hierarchy was the fall-back mode when the final project prototype quality and completion deadline seemed threatened.

Regarding the grade seven participants, roles were reversed on one level compared to more typical classroom settings because they were invited to lead the direction of the video game. During the face-to-face meetings in the classroom however, the roles were less reciprocal as structures continued to resemble traditional classroom structures where the interns were in the role of the teacher and gave instructions for the youngest participants to follow. In order for this

project to really become a paradigmatic affinity space, the grade seven participants would have to have opportunities to lead, direct and/or contribute to the decisions regarding structures and plans for the face-to-face meetings as well.

Recommendations: roles are reciprocal. Within the Toronto context, or in relation to the youngest contributors to the project, equal opportunity to participate in all ways in the project must be provided. What ultimately held the project together at the Montréal site, were regular points of contact where the Montréal team shared progress, information, challenges and ideas and everyone contributed to courses of action and strategies for overcoming challenges. Roles were reciprocal within this context. Towards the end of the project Lisa Simpson did not communicate schedule details and game details to the rest of the team. This was partially due to the fact that towards the end, group meetings were less consistently held. This problem could be avoided in the future by ensuring the meetings do not stop for any reason and by making clear the importance of regular communication and seeking help when needed.

A View of Learning That Is Individually Proactive but Does Not Exclude Help Is Encouraged

This is also a central tenet of the AoW project. Everyone was proactive and sought help when needed, with the exception of the few challenges towards the end of the project. The core strength of the project was the degree to which the interns, particularly during Phase 1,[27] were proactive, yet also knew to bring problems to the group when they needed help. The project would not have worked otherwise. One challenge of AoW in the future will be if individuals lose motivation and cease to be proactive. In an online affinity space people come and go and

[27] September 18, 2014 - April 29, 2015

participate in the ways they desire. In this context, there were interns who heard about the project and joined for shorter periods of time. Each of these participants, of which there were four, joined the team, made a particular contribution, and left when their contribution was complete. For example, Captain Holt participated only in the game jam. Without a key number of participants who were proactive and committed to the project, the project would likely have fallen apart. A certain degree of commitment from at least two interns, one who specifically focusses on computer-programming, as well as one main facilitator, one art intern, and ideally one youth seems ideal in a context where the overarching goal is to produce a video game (or media work).

In a more typical affinity space context there are not necessarily collective repercussions if one person ceases to be proactive. For example, individuals may choose to create fashion items for others in a *Sims* affinity space. If they do not follow through, they may upset members and lose status within the space. This misstep effects only their own reputation. In AoW the situation was more complex and interconnected. The stakes were higher because to not follow through with the end goal of a video game prototype would have affected the collective integrity of the Montréal team as they were the ones tasked with the creation of the game. As the liaison between the school and the university, I would have lost credibility with the school, which would have affected my reputation and possibly my career. The interns involved in the project would have faced individual consequences (i.e. grades, loss of pay, or loss of a reference), but this would likely not have had far-reaching professional consequences. In an online affinity space, typically the reputation of a person is individualist, and not contingent on others in the same way. AoW had an end point. With more typical affinity spaces, there are no clear end points, though

they can fade away eventually (Gee, 2005). By contrast, AoW consisted of actual physical spaces where people came together, and it was understood that people would cease coming together in the actual spaces once the end goal of the prototype was complete. The end point for AoW was a goal, and if the goal was not met, the project would have been a failure. This difference was also part of the magic of the AoW project. Everyone was bound to the collective and the end goal was a shared accomplishment.

This affinity space required a particular kind of trust. The first two interns who were involved with the project for the longest period of time and from the beginning were consistently passionate about the project. Each week they participated in meetings with enthusiasm and provided reflections about the project that were well-considered, meaningful, and important contributions to the project's evolution. Though everyone on the team was busy with a wide variety of things throughout AoW's Phase 1, and participants did not always meet the deadlines they set for themselves, there was a trust that held the team together. There was an understanding between all team members that the project was important, that the work would be completed, and that the caliber of work would be high. This trust came partially from the proactive nature of the Montréal participants. They demonstrated their proactive nature prior even to the official beginning of the project by having sought out Nancy Drew in the first place with the desire to collaborate over shared interests.

Adding to this trust, the interns never hesitated to jump in and figure things out and also knew when to say no to a task or seek help when they could not handle something. Weekly meetings were rarely missed by anyone, and it was understood that if someone were missing, at least during the first phase of the project, it was for an unavoidable reason. True to nurturing

spaces in particular, there was a tendency to "promote a view of requests for help (when other resources have been exhausted) as a means for enhancing the knowledge base of the space as a whole, as participants engage in collective problem-solving" (Gee & Hayes, 2012, p. 29). Involvement in all decisions about the project from the very beginning created a sense of deep responsibility and comfort that enabled participants to share challenges without feeling threatened. This situation did not quite exist as strongly for most members who joined the project later in phase one and in phase two, as they were not as upfront about when they were confronted with challenges. Besides the example related to Lisa Simpson, Tank Girl also had committed to coming to the final focus group. Nancy Drew secured funding to support this event, but Tank Girl did not follow through. The interns involved in the shaping of the project from the beginning were individually proactive and sought help when needed. This degree of involvement in the shaping the project from the beginning likely produced a deep sense of collective ownership. This sense of ownership may have contributed to motivation[28], and to the degree of comfort needed to seek help.

The youngest members of the team often demonstrated proactive learning skills. The most powerful demonstration of this was during the GDD when they energetically developed the various aspects of *Ghost Hotel* and took it upon themselves to share and align the game details among themselves. They also demonstrated proactive learning when they jumped right into video game play on two occasions. An affinity space has to be sought out and is typically sought out because a passion about something has already been ignited. Nancy Drew and myself shared a view of learning that was individually proactive. Hermione Granger and Clementine joined the

[28] this is hard to say for sure because Hermione Granger and Clementine are proactive people by nature

project because they were looking for an interesting game-based project related to gender. This was the foundation upon which the project came to be. The grade seven participants had the choice to participate (though I have spoken elsewhere about the complexity of participation in schools), though, unlike the interns, they did not seek out the project. This problem will be solved when the recommendation to move it to a lunch time or after school context is implemented. Also, consistent physical spaces associated with the project will allow people to come to it of their own accord more easily.

Recommendations: a view of learning that is individually proactive but does not exclude help is encouraged. Ideally, the prototype would have been completed at the end of phase one with consistent interns. By the end of phase one Hermione Granger had created a prototype, but it was not complete to the point that we all felt comfortable presenting it as the final project. This was not Hermione Granger's fault. It was simply a matter of running into more challenges than we expected. Involvement in decisions from the beginning likely contributed to the sense of ownership that fuelled proactive behaviors.

People Get Encouragement from an Audience and Feedback from Peers, Though Everyone Plays Both Roles at Different Times

During AoW, encouragement from an audience and feedback from peers were not distinguishable types of events. The overall character of the AoW affinity space was one of encouragement. The weekly Montréal meetings provided a constant feedback loop for individual work produced as well as thoughts about the direction of the project itself. Individual modifications to our own work and collective modifications to the project plan were made accordingly. For example, Nancy Drew created overall plans and schedules to guide the project,

but these plans were always open to modification if others thought there was a need or when anyone on the Montréal team ran into challenges and had to readjust. In terms of the work produced, there were several ways peer feedback took place. The interns and professionals had direct feedback and encouragement from one another, but access to feedback between the grade seven participants and the Montréal team was obviously less consistent due to the communication challenges.

In addition to details about the game design itself being both critiqued and encouraged, feedback also played a key role during the initial workshop with the grade seven participants. Prior to coming up with the ideas for the game, the grade seven participants spent time with the interns discussing leadership and acting out leadership strategies in response to scenarios. During this first visit, the interns encouraged the students' ideas, while also asking key questions and nudging them to go deeper with their thinking. There were three key techniques for accomplishing this. After students spoke, Hermione Granger would often respond with positive reinforcement: "All good points." When she did not directly respond in this way, she would repeat back what she understood the student to have said, ensuring that she was listening and taking them seriously. Her other tendency was to draw key points of agreement between the discussants and nudge them to go deeper with their thinking. For example:

> So this idea of role model seems to be important with, uh, the people that you surround yourself and the people that you have to look up to. Do you think that role models and people who have these kinds of traits, leadership traits, do you think that they can be people your age, or do they have to be older? do you guys feel like you can practice these personality traits in your daily life? (audio transcript, November 14, 2014)

These three techniques contributed to an encouraging environment. During work sessions in Toronto (i.e., working on concept sheets or GDD), similar feedback and encouragement ensued as well. While the original concept sheets were being filled in by the grade seven participants, Hermione Granger, Clementine and myself engaged with them and provided feedback on their ideas as they developed. Overall feedback had a tone of both inquiry and encouragement. For example, a student described her story concept wherein a prince tries to save a princess but dies, so her sister steps in to save her. Hermione Granger praised the idea: "Nice! That's an awesome story" (audio transcript, November 14, 2014). She then nudged the student a bit further by asking her to explain the idea behind the story. Hermione Granger praised the answer to this question, and the student continued to describe details of her own accord. The conversation unfolded like this:

- Student: "Um the message is like girls… princes aren't the only ones who can save you, girls can help each other."
- HG: "nice, that's awesome."
- Student: "And she's going to start off wearing a dress and high heeled shoes and a crown, except and then you can get upgrades and stuff and you can get prince armour which will help you cause you."
- HG: "Ya."
- Student: "And you can get like a whole bunch of upgrades like weapons and stuff."
- HG: "who is your target audience?"
- Student: "um i think girls um ages like younger to — it's a simple jump and run type game"
- HG: "Ya something that really anyone could have fun playing?"

- Students: “Ya.”
- HG: “Very cool!”

(audio transcript, November 14, 2014).

During the work sessions onsite with the grade seven students, the interns were adept at providing feedback with a tone of encouragement.

This habit of encouraging feedback manifested in the second work session with the grade seven participants as well. After the initial workshop with the youngest participants, the original concept sheets were analyzed by the interns, Nancy Drew and myself. We pulled all of the game genre and mood choices from their concept sheets and added them up. We also mined for ideas and details that stood out for various reasons. These details were shared with the grade seven participants during the second visit. I provided feedback about their ideas:

> So last time you were given this sheet and all of you filled in your great ideas about games and a lot of you recorded your ideas about games. So what we did when we got back to Montréal is we went through all of these sheets and listened to all of your recordings, which are very amusing I must say your ideas are really funny and great so what we did is we squeezed all of that information and pulled out all of the main themes. (audio transcript, April 1, 2015)

In the Montréal setting, the art interns shared their work throughout the project and received feedback from both the Montréal team and the grade seven students. I delivered feedback from grade sevens second hand. The work of the art interns had a powerful motivating effect on the team. As described in the energizing moments section, the art brought the project to life. Verbal

descriptions of the game did not have the same kind of power. The art interns were often on the receiving end of encouragement. If in the future there was a situation where the work was not so collectively approved each time, more dialogue would be key. Hermione Granger's strategy of praising the perceived strong elements and discussing the weaker elements would be a good initial strategy. This would help to maintain the balance between encouragement and critical feedback. When the final prototype was played during the focus group, Lisa Simpson, who did the programming, listened in to the responses from the grade seven students. They had many positive responses as well as other types of input, such as ideas about how to make the game easier and the suggestion that they would like to see more story sequences like the introductory sequence. One student was disappointed that there was not more to the prototype. Lisa Simpson explained that it is complex to create a game and that they only had six weeks to create the prototype. Students provided input from their perspective about what the game was teaching about leadership, and they understood very well the connections between the narrative and leadership. For example:

- Student 1: "I think it's cause like she's going to get the ghosts to be on her team and you have to convince people to like help you and you can't just select people to like automatically be on your side, like you have to convince people you need to get people on your team, they won't just come to you."
- Myself: "Ya and that's a big part of being a leader too, right exactly"
- Student 2: "I think that also the fact that she didn't listen to the person and did what she needed to keep the hotel running was like leadership for she was helping everybody else in the

hotel, not just thinking like oh like if I don't do what he tells me I could get fired, like thinking for the team."

(audio transcript, December 7, 2015)

Participants were typically encouraging. Critical feedback was constructive and generally contained practical suggestions for moving forward. The grade seven participants provided feedback to one another while collectively negotiating the details of the GDD. During weekly meetings the Montréal participants described their accomplishments and goals for the past week and received feedback from the group.

Recommendations: people get encouragement from an audience and feedback from peers, though everyone plays both roles at different times. Throughout the project all team members fluidly moved between being an encouraging audience for the work of the others, providing feedback in the form of suggestions and praise, and nudging or probing to rethink ideas on a deeper level. These elements were key and should be modelled: Encourage and comment on appreciated work; provide suggestions not demands ("Have you thought about this?"); nudge or probe more deeply if something is unclear or you disagree, but ultimately understand it is the creator's choice ("Tell me more about this.")

The Fourteen Features of Nurturing Affinity Spaces Ranked According to Relative Strength.

Gee and Hayes (2012) support and promote the idea of nurturing affinity spaces in schools, yet understand that there are many constraints in place that render this a challenging task to accomplish. They suggest that the application of even just some of the features of affinity spaces in schools is important. The features themselves can also be present in weaker or stronger

forms. In my reflections in this chapter, I have attempted to decipher the relative strengths and weaknesses of each of the features in AoW. Though all features were present to some degree in the project, some features were strongly represented and some were weak. The following list of the fourteen features of nurturing affinity spaces ranks the features in the context of AoW according to their relative strength in the project. These rankings were established through rubrics. The same rubric was applied separately to both the Montréal setting and the Toronto setting based on a 1 - 5 scoring system where 5 is the strongest. A 5 indicates that the feature was demonstrated in 5 or more ways within the context of the project. The rubrics appear as appendix H. The largest font indicates the strongest and most successful features and the smallest represents the weakest. The goal regarding future iterations of the project is to enable all features to be strengthened to the point where the project offers a paradigmatic affinity space, which would be a powerful progressive learning environment in support of the curriculum shift taking place in North America towards twenty-first century learning environments. For future reference this list is also included as a separate appendix (appendix F).

1. Newbies, masters and everyone share a common space.
2. Affinity spaces are not segregated by age.
3. Content is transformed by interaction.
4. People get encouragement from an audience and feedback from peers, though everyone plays both roles at different times.
5. Common endeavour is primary (versus race, class, gender, disability).
6. Everyone can, if they wish, produce and not just consume.
7. The development of both specialist and broad, general knowledge are encouraged, and specialist knowledge is pooled.
8. Both individual and distributed knowledge are encouraged.
9. Tacit knowledge is used and honoured.
10. Many different routes to status.
11. Leadership is porous and leaders are resources.
12. A view of learning that is individually proactive, but does not exclude help, is encouraged.
13. Many different forms and routes to participation.
14. Roles are reciprocal.

Chapter 8

Discussion and Conclusion

Collaborative partnerships like the AoW project can model and support the evolution of classroom processes towards more progressive notions of what schools can be without directly threatening daily classroom routines. I am introducing Felix Guattari's (2007) writing about an experimental project referred to as La Borde (the psychiatric institution where the project took place) at this point to help to elucidate the idea that collaborative partnerships like the AoW project can actually begin to open up space in schools for truly progressive approaches. Further, I think Guattari's ideas set the stage for future analytical work related to this project from a more radical student-centred perspective. AoW and other student-centred project based partnerships can support what Guattari (2007) refers to as the "reorganization of the musical notes" (Guattari, 2007, p. 181) of educational institutions. It is not realistic to destroy the education system and rebuild it according to a twenty-first century vision and again according to the vision that follows. It is however "...surprising to realize that with the same microsociological "notes" one can compose a completely different institutional score." (Guattari, 2007, pg. 181). The structures that constrain us are alterable, and can be re-organized in such a way that we begin to move in new directions.

Guattari's (2007) recounting of La Borde provides a perspective through which we can begin to consider the AoW project as a strategy for providing a progressive learning opportunity that can subvert a deeply rooted system that is based on traditional education. La Borde was an experiment in institutional psychotherapy, where everyone involved in the institutional eco-system—patients, caretakers, gardeners, cooks, and doctors alike— shared all of the hospital

duties. Doctors for example, took turns cleaning and preparing food. Cooks organized extra-curricular activities. Those involved, rather than simply following a pre-established protocol on an ongoing basis, were involved in transforming protocol on a daily basis, and actively problem-solving and reflecting on daily activities taking place at the hospital. This active engagement with one's context is ultimately what Freire (1968/2008) meant by praxis, and what Dewey (1938/1998; Dewey, 1934) implied through experiential learning and the idea that learning is life (Dewey, 1938/1998, p. 11). Guattari (2007) calls upon us to enable institutions to become opportunities for "permanent internal recreation" (Guattari, 2007, pg. 181). Rather than considering institutions as closed, unchangeable systems, and rather than behaving within these systems as closed systems ourselves, we should instead understand that our systems and institutions are re-arrangeable, and that this should happen on an ongoing basis as we continue to reflect and act upon our own circumstances (Guattari, 2007). Ultimately, AoW provided a space within the seemingly rigid idea of the institution where an alternative way of doing things could be experimented with at the same time as school proceeded as usual. Applying the metaphor of porousness, projects like this create the opening or the bubble within the institution, inside which the institutional notes can be rearranged. My hypothesis is that over time multiple bubbles can overtake most of the solid structure enabling schools to become open-systems.

This research project addressed the following broad question: If this project itself is a prototype, how can it be improved? In what ways can we tailor future iterations of the project to leverage the impact of the project on all participants involved, within a twenty first century learning framework? The broad questions were addressed through the lens of affinity spaces and energizing moments, addressing the following specific questions:

1. Looking at the project through the lens of "affinity spaces" what suggestions can be made for improvement?
2. Through consideration of "energizing moments" throughout the project, what was happening within such moments that motivated the participants, and maintained their interest?
3. What deflated motivation and interest?
4. Based on these analyses, what are guidelines that could enable future such projects?

The most important suggestions towards strengthening the AoW as a nurturing affinity space involves working with partnering schools in a local context in order to improve connection and communication strategies, and therefore the strength of the collaboration as an affinity space. Distance and communication issues effected many of the features of AoW as a nurturing affinity space and also deflated motivation and interest on behalf of the youngest participants. Energizing moments were fuelled by creative collaboration, game-play and the evolution of the project from the realm of the abstract into something more concrete. The most highly energized moment was an unexpected face-to-face visit with the grade seven participants in Toronto where they established all of the main details of the game. This moment may have delivered the most important message from this project, which is to never underestimate the power and relevance of face-to-face collaboration, particularly when it comes to the creative process.

The potential power of affinity spaces as a learning strategy within formal learning environments perhaps comes from the in-person aspect of the collaboration, whereas currently most affinity spaces take place online. Perhaps a key role of formal learning environments within a twenty-first century context is to provide opportunities for face-to-face affinity spaces as a means of counterbalancing the lack of human contact that our dependence on online affinity

spaces, social networking sites, and online interactions more broadly generally entail. Online learning environments can be used as a powerful resource to inform offline progressive learning environments. This seems to be one ultimate role classrooms as affinity spaces can play in a world where people come together and interact increasingly in spaces where the body is absent.

The AoW project is part of a growing movement where the desire for real-world learning experiences in school, propelled by the twenty-first century learning movement, will continue to grow. Encouraging the idea of real-world learning partnerships with schools necessarily involves the ethical conflict brought on by promoting partnerships in a world where capitalism has already infiltrated the education system in a number of damaging ways (Make Believe Media, 2007). Encouraging the idea of real-world partnerships is another avenue through which this same type of threat has the opportunity to penetrate school communities. As I peeled back the layers of twenty-first century learning, and thought more deeply about this tension, it lead me to recognize the importance of the intention of the partnership. Where much of the interest in twenty-first century learning comes from industry and the desire to continue to form workers and human capital, partnerships should come from a place of desire for the overall well-being of students. This realization lead me to recognize that what was essential to the character of the AoW project was that the driving force was not job based and economy-centric, but experience based. Experience based in the Deweyan sense of self-development through experience comes to us by working on meaningful projects collaboratively (Dewey, 1938/1998; Dewey, 1934). Such projects require a genuine interest and passion for the work, akin to what moves people to enter into affinity spaces. As an ethnographic researcher participating in the project, what struck me most, particularly about Nancy Drew, Hermione Granger, and Clementine, was their sheer delight

participating in the project. In terms of future implications, then, strategies for ensuring that real-world partnerships established with schools are focussed on the well-being of people rather than the well-being of the economy will be imperative.

Future Implications

Consideration of the project as a prototype meant that reflections provided a good base from which to recreate the project from the perspective of nurturing affinity spaces informed by energizing moments from the outset. In the future, research, particularly from a student-centred perspective, can be taken to a deeper level through deeper involvement and input from the participants through focussed interviews, questionnaires and reflective journalling. There are many further aspects of the project that merit investigation in relation to a twenty-first century learning perspective. For example, how the project addresses the Four Cs, creativity, collaboration, critical-thinking and communication, is an important area for further research. Even more important moving forward will be the development of strategies and approaches towards evaluation of the development of capacities like the Four Cs. This is a challenge that art education has been engaging with for decades (Blakie, Schnau & Steers, 2004; Graham & Sims-Gunzenhauser, 2009; May, 2011; Im, 2011; Page, 2012; Springgay, 2006), and a literature to which this project can also eventually contribute.

After watching and participating in this project for a year and three months, I began to realize its potential as an entire movement. My intention is to continue to refine guidelines. My plan now is to work towards establishing a long-term partnership between Tyler School of Art at Temple University, where I am to be an assistant professor, and a partnering school. I will continue to develop AoW as a nurturing affinity space and to further consider different ways such

features may require modification as they relate to schools and individual contexts. Following this, I would like to look more closely at the impact of the lack of age segregation feature of nurturing affinity space, or the intergenerational nature of the project. Over time, I think the project will merit expansion towards involvement of a wider variety of ages, through other types of institutions like retirement homes and daycares. Eventually, I would like to develop the project into a university-level course.

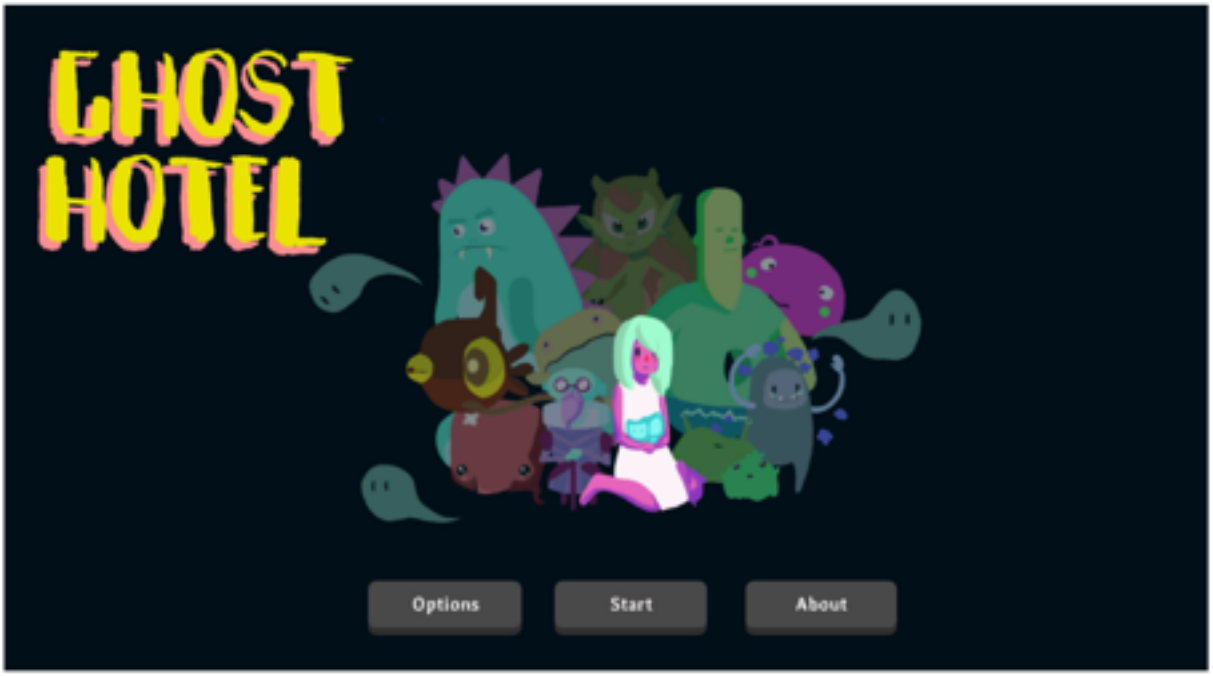


Figure 12. Ghost Hotel Introductory Screen (TankGirl, 2015)

References

About Games for Change | Games for Change. (n.d.). Retrieved July 19, 2016, from http://www.gamesforchange.org/about/

ACT Foundation And Institute for the Future Reimagine The Future Of Learning. (2016, March 07). Retrieved July 19, 2016, from http://www.prnewswire.com/news-releases/act-foundation-and-institute-for-the-future-reimagine-the-future-of-learning-300231675.html

Actua. (n.d.). Retrieved July 19, 2016, from http://www.actua.ca/

Adkins, T. (2008). A Thousand Plateaus, Chapter Eight: Lines and segmentarity. Retrieved from https://fractalontology.wordpress.com/2008/06/01/a-thousand-plateaus-chapter-eight-lines-and-segmentarity/

Albers, P., & Sanders, J. (Eds.). (2010). *Literacies, the arts & multimodality.* USA: National Council of Teachers of English.

Akcaoglu, M., & Koehler, M.J. (2014). Cognitive outcomes from the game-design and learning (GDL) after-school program. *Computers and Education, 75.* 72 - 81.

Anderson, T., & Sturm, B. (2007). Cyberbullying: From playground to computer. *Young Adult Library Services, 5*(2), 24.

Aricak, O.T. (2009). Psychiatric symptomatology as a predictor of cyberbullying among university students. *Eurasian Journal of Educational Research*, *34* (winter), 167-184.

Arnez, F., Pace, J. & Sung, K. (2014). Learning while building games for teaching. *Entertainment Computing, April,* 88 - 91.

Atkinson, P., & Hammersley, M. (1994). Ethnography and participant observation. In N.K. Denzin & Y.L. Lincoln (Eds.), *The handbook of qualitative research*, 1(23), 248-261.

Bakar, A., Inal, Y., & Cagiltay, K. (2006). Use of commercial games for educational purposes: Will today's teacher candidates use them in the future?. In *World Conference on Educational Multimedia, Hypermedia and Telecommunications* (Vol. 2006, No. 1, pp. 1757-1762).

Bannear, B. (2016). Learning is earning 2026. Retrieved June 27, 2016, from http://www.learningisearning2026.org/card_plays/8923has

Barnett, J., & Coulson, M. (2010). Virtually real: a psychological perspective on massively multiplayer online games. *Review of General Psychology, 14*(2), 167 - 179.

Baytak, A., Land, S. (2011). Advancing elementary school girls' programming through game design. *International Journal of Gender, Science and Technology, 3*(1), 244 – 253.

Beg, I., Van Looy, J., & All, A. (2014). Evaluation of the game development process of a location-based mobile game. European Conference on Game Based Learning Conference Proceedings.

Behnke, K. A. (2012, May). Ladies of warcraft: changing perceptions of women and technology through productive play. In *Proceedings of the International Conference on the Foundations of Digital Games* (pp. 288-289). ACM.

Benson, L., Harkavy, I., & Puckett, J. (2000). An implementation revolution as a strategy for fulfilling the democratic promise of university-community partnerships: Penn-West Philadelphia as an experiment in progress. *Nonprofit and Voluntary Sector Quarterly, 29*(1), 24-45.

Blakie, F., Schnau, D., & Steers, J. (2004). Preparing for portfolio assessment in art and design: A study of the opinions and experiences of exiting secondary school students in Canada, England and The Netherlands. *International Journal of Art and Design Education, 23*(3), 302 - 315.

Boccella, K. (2016, February 29). As protests rise over high-stakes tests, more students likely to opt out. Retrieved July 16, 2016, from http://articles.philly.com/2016-02-29/news/71035131_1_standardized-tests-pssa-testing-keystones

Bogost, I. (2007a). *Persuasive games: The expressive power of video games.* Cambridge MA: MIT Press

Bogost, I. (2007b). Persuasive games on mobile devices. Retrieved from http://www.bogost.com/

Bogost, I. (2008). The rhetoric of video games. *The ecology of games: Connecting youth, games, and learning.* Edited by Katie Salen The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning. Cambridge, MA: The MIT Press, 2008. 117–140. doi: 10.1162/dmal.9780262693646.117

Bogost, I. (2014). Persuasive games: exploitationware. *Gamasutra* Retrived from http://www.gamasutra.com/view/feature/134735/persuasive_games_exploitationware.php?print=1

Boud, D., Solomon, N. & Symes, C. (2001). New practices for new times. In D. Boud & N. Solomon (Eds.), *Work Based Learning: A New Higher Education?* Pennsylvania, Philadelphia: SRHE & Open University Press.

Boudreault, F. A., Haga, J., Paylor, B., Sabourin, A., Thomas, S., & Van der The School, C. (2013). *Future tense: Adapting Canadian education systems for the 21st century (Rep.).* Action Canada.

Bourgonjon, J., De Grove, F., De Smet, C., Van Looy, J., Soetaert, R., & Valcke, M. (2013). Acceptance of game-based learning by secondary school teachers. *Computers & Education*, *67*, 21-35.

Briggs, J.L. (1991). Expecting the unexpected: Canadian Inuit training for an experimental lifestyle. *Ethos, 19* (3), 259 – 287.

Brown, C. (n.d.). *Patterns of innovation: showcasing the nation's best at 21st century learning.* Retrieved from: http://www.p21.org/storage/documents/exemplars/P21_Patterns_of_Innovation_Final.pdf

Brown, H.J. (2008). *Video games and education.* New York: M.E. Sharpe.

Brundiers, K., Wiek, A. & Redman, C.L. (2009). Real-world learning opportunities in sustainability: from classroom into real world. *The International Journal of Sustainability in Education, 11*(4), 308 - 324.

Building Student Success - BC's New Curriculum. (2015). Retrieved July 09, 2016, from https://curriculum.gov.bc.ca/curriculum

Burke, A. (2011, October 27). Games that solve real problems: crowdsourcing biochemistry. *Forbes.* Retrieved from http://www.forbes.com/sites/techonomy/2011/10/27/games-that-solve-real-problems-crowdsourcing-biochemistry/#3198ce771199

Butler, J. (1999) Gender trouble: feminism and the subversion of identity. New York: Routledge.

Caillois, R. (1958). Roger Caillois: The definition of play; The classification of games. In K. Salen, E. Zimmerman (Eds.), *The Game Design Reader: A Rules of Play Anthology* (2006). Massachusetts, Boston: MIT press.

Casell, J. & Jenkins, H. (2000a). Chess for girls? Feminism and computer games. In J. Cassell & H. Jenkins (Ed.), *From Barbie to Mortal Kombat: Gender and computer games*. Massachusetts, Boston: MIT press.

Cassell, J., & Jenkins, H. (Eds.). (2000). *From Barbie to Mortal Kombat: gender and computer games*. Boston: MIT press.

Castro, J.C. (2007). Proceedings of the 2007 Complexity Science and Educational Research Conference Feb 18–20 • Vancouver, British Columbia • pp. 75–86 • www.complexityandeducation.ca

C21 Canada (Canadians for 21st Century Learning and Innovation). (2015). *Shifting minds 3.0: redefining the learning landscape in Canada*. Canada: Penny Milton.

Children Now. (2001). *Fair play? Violence, gender and race in video games*. Oakland, California: Glaubke, C. R., Miller, P., Parker, M. A., & Espejo, E.

Consalvo, M. (2003). It's a queer world after all: Studying the Sims and sexuality. Retrieved from: http://archive.glaad.org/documents/csms/The_Sims.pdf

Crawford, C. (1982). *The Art of computer game design*. Retrieved from http://www-rohan.sdsu.edu/~stewart/cs583/ACGD_ArtComputerGameDesign_ChrisCrawford_1982.pdf

Dahya, N. (2008). *Video games for education and social change: Examining representation and learning in serious and persuasive digital-games.* (Master's Thesis). Retrieved from ProQuest. (978-0-494-45929-4).

Dasgupta, P., K. Tureski, R. Lenzi, K. Bindu, G. Nanda. 2012. *Half the sky movement multimedia communication initiative: An evaluation of the 9-Minutes mobile game and video.* Washington, DC: C-Change/FHI 360.

de Freitas, S., & Liarokapis, F. (2011). Serious games: a new paradigm for education?. In Serious games and edutainment applications (pp. 9-23). Springer London.

Delamere, F.M. & Shaw, S.M. (2008). "They see it as a guys game": The politics of gender in digital games. *Leisure/Loisir. 32*(2), 279 – 302.

Deleuze, G. & Guattari, F. (1987). *A Thousand plateaus: Capitalism and schizophrenia.* Minneapolis, Minnesota: University of Minnesota Press.

Denzin, N., Lincoln, Y. (2011). The discipline and practice of qualitative research. In N. Denzin and Y. Lincoln (Eds.) *The SAGE handbook of qualitative research*. 3E. Thousand Oaks, London, New Delhi: SAGE Publications. Pp. 1-19.

Dewey, J. (1998). *Experience and education: The 60th anniversary edition.* West Lafayette, Indiana: Kappa Delta Pi. (Original work published 1938)

Dewey, J. (1990). *The school and society & The child and the curriculum.* Chicago: The University of Chicago Press. (Original work published 1900 & 1902).

Dewey, J. (1916). *Democracy and education.* New York: The MacMillan Company.

Dewey, J. (1932). *Art as experience.* New York: Penguin.

Dickey, M.D. (2006). Girl gamers: The controversy of girl games and the relevance of female oriented game design for instructional design. *British Journal of Educational Technology, 37* (5), p. 785 – 793

Dixon, S., Weber, S., & Craven, E. (2015, May). Finding the gaps: Report on the preliminary findings of the Atwater library and computer centre's project. In Dixon, S. (Chair), *Minding the gaps: Identifying strategies to address gender-based (cyber)violence.* Symposium conducted at McGill University, Montreal, QC.

Djaouti, D. (2013, March 5). Game design tools for collaboration. Retrieved July 07, 2016, from http://www.gamasutra.com/view/feature/187777/game_design_tools_for_collaboration.php?page=3

Djaouti, D., Alvarez, J., Jessel, J. P., & Rampnoux, O. (2011). Origins of serious games. *In Serious games and edutainment applications* (p. 25-43). Springer London.

Dodds, C. (2016). Learning is Earning 2026. Retrieved June 27, 2016, from http://www.learningisearning2026.org/card_plays/8923has

Dodge, T., Barab, S., Stuckey, B., Warren, S., Heiselt, C., & Stein, R. (2008). Children's sense of self: Learning and meaning in the digital age. *Journal of Interactive Learning Research, 19*(2), 225.

Driscoll, M.P. (2005). *Psychology of learning for instruction.* Florida State: Pearson.

Education Sector. (2008). *Measuring skills for the 21st century.* Washington, DC: Silva.

El Ansari, W., Phillips, C. J., & Zwi, A. B. (2002). Narrowing the gap between academic professional wisdom and community lay knowledge: Perceptions from partnerships. *Public Health*, 116(3), 151-159.

Emes, C. E. (1997). Is Mr. Pac Man eating our children? A review of the effect of video games on children. *Canadian Journal of Psychiatry, 42*, 409-414.

Fair, J, Melvin, M., Bantz, C., & Vause, K. (1988). *Kids Are consumers, Too! Real-world reading and language arts.* Boston: Addison-Wesley.

Falstein, N., & Fox, D. (1997, June 19). Collaborating in game design. Retrieved July 07, 2016, from http://www.gamasutra.com/view/feature/131617/collaborating_in_game_design.php

Fantone, L. (2009). Female players from margin to centre: Female sociality, digital consumer citzenship and reterritorialization. *Digital Creativity. 20* (4), 211 – 224.

Federation of American Scientists. (2006). *Harnessing the Power of Video Games for Learning: Summit on Educational Games*. Washington, DC: FAS.

Flanagan, M. (2005). Troubling games for girls: Notes from the edge of game design. *Digra conference proceedings, Changing Views – Worlds in Play, June 16 - 20, Vancouver BC.*

Flanagan, M., Nissenbaum, H. & Howe, D.C. (2005). Values at play: Tradeoffs in socially oriented game design. *CHI conference proceedings, April 2 – 7.* Portland: Oregon.

Flynn, B. (2016). *Design Centred Learning: Developing Collaborative Skills by Making Games* (Doctoral Dissertation). Retrieved from http://repository.cmu.edu/cgi/viewcontent.cgi?article=1062&context=theses.

Fosmire, M., & Macklin, A. (2002). Riding the active learning wave: Problem-based learning as a catalyst for creating faculty-librarian instructional partnerships. *Issues in Science and Technology Librarianship, 34* (Spring 2002).

Frasca, G. (2007). *Play the message: Play, game and video game rhetoric.* Retrieved from http://www.powerfulrobot.com/Frasca_Play_the_Message_PhD.pdf

Frasca, G. (2003). Simulation vs. narrative: Introduction to luddology. In M.J.P. Wolf, and B. Perron (Eds.), *The Video game theory reader.* New York: Routledge

Freire, P. (2008). *Pedagogy of the oppressed*: 30th Anniversary Edition. New York: Continuum. (Originally published in 1968).

Gee, J.P. (2003). *What video games have to teach us about learning and literacy.* New York: Palgrave Macmillan.

Gee, J.P. (2004). Situated language and learning: A critique of traditional schooling. Routledge, New York: NY.

Gee, J. P. (2005). Beyond communities of practice: Language, power, and social context (D. Barton & K. Tusting, Eds.). Cambridge: Cambridge University Press.

Gee, J. P. (2010). A situated-sociocultural approach to literacy and technology. The new literacies: Multiple perspectives on research and practice, 165-193.

Gee, J. P., & Hayes, E. (2012). Nurturing affinity spaces and game-based learning. *Games, learning, and society: Learning and meaning in the digital age*, 123.

Gee, J.P. & Hayes, E. (2010). *Women and gaming: The Sims and twenty first century learning.* Palgrave Macmillan, New York: NY.

Germany, L. (2011). iTunes U: an opportunity for students. *Campus-wide information systems,* 28(3), 175-182.

Gibson, M. (2014, December 9). Ebola survivor calls Band Aid 30 song 'cringeworthy'. Time Magazine.

Giroux, H. A., Lankshear, C., McLaren, P., & Peters, M. (Eds.). (1996). *Counternarratives: Cultural studies and critical pedagogies in postmodern spaces.* New York: Routledge.

Global Kids | Home. (n.d.). Retrieved July 19, 2016, from http://www.globalkids.org/

Gouseti, A. (2014). Digital technologies for school collaboration. Palgrave Macmillan, New York: NY.

Government of Québec, (2016). Québec Education Program. Retrieved from http://www1.mels.gouv.qc.ca/sections/programmeFormation/secondaire1/pdf/chapter82.pdf

Graham, M.A., & Sims-Gunzenhauser, A. (2009). Placement in studio art and secondary art education policy: Countering the null curriculum. *Arts Education Policy Review, 110*(9), 18 - 24.

Guattari, F. (2007). *Chaosophy: Texts and interviews 1972 - 1977.* Cambridge, Massachusetts: MIT Press

Harvey, A. (2011). Constituting the player: Feminist technoscience, gender, and digital play. *International Journal of Gender, Science and Technology, 3*(1), 171 – 184.

Hayes, E. (2011). The Sims as a catalyst for girls IT learning. *International Journal of Gender, Science and Technology, 3*(1), 122 – 147.

High-Stakes Test. (2014, August 18). Retrieved July 19, 2016, from http://edglossary.org/high-stakes-testing

Hoachlander, G. (2008). Bringing industry to the classroom. *Educational Leadership,* 22 - 27.

Hubert, C. (n.d.). Molar/Molecular. retrieved from http://www.christianhubert.com/writings/molar___molecular.html

Huizinga, J. (1949). *Homo ludens: A study of the play element in culture.* London: Routledge.

Hunt, J. B., Bonham, C., & Jones, L. (2011). Understanding the goals of service learning and community-based medical education: a systematic review. Academic Medicine, 86(2), 246-251.

Hwang, G.J., Hung, C.M., & Chen, N.S., (2014). Improved learning achievements, motivations and problem-solving skills through a peer assessment-based game development approach. *Education Tech Research Development, 62,* 129 – 145.

Im, S.B., (2011). The generative practice of online critiques on individual art practice. (Doctoral dissertation). Retrieved from ERIC. (3448032)

Ito, et. al., (2010). *Hanging out, messing around and geeking out: Kids living and learning with new media.* Cambridge, Massachusetts: MIT Press.

Jacobs, J. (1992). *The death and life of great american cities.* New York: Random House.

Jackson, R. E. (2016). *Why does art education matter? An art education Guide.* Hamilton, ON: Culture for Kids in the Arts.

Jackson, R.E. & McCullagh, S. (2014). Developing aesthetic-empathy: A capacity for teaching in constructivist learning environments. *The Canadian Review of Art Education, 42* (1).

Jackson, P.W. (1990a). Introduction. In *John Dewey the school and society; The child and the curriculum* pp. ix - xxxvii). Chicago: University of Chicago Press.

Jackson, P.W. (1990b). *Life in classrooms.* New York, NY: Teachers College Press

Jen. (2011, April 10). Gender. [Blogpost]. Retrieved from http://sociology101cibjnf.blogspot.ca/2011/04/gender.html

Jansz, J. & Martis, R.G. (2007). The Lara phenomenon: Powerful female characters in video games. *Sex Roles, 56*, 141 – 148.

Jenkins, H. (2009). *Confronting the challenges of participatory culture: Media education for the 21st Century.* Massachusetts: MIT press.

Jenson, J. & de Castell, S. (2003). Serious play. *Journal of Curriculum Studies, 35* (6), 649 – 665.

Jenson, J. & de Castell, S. (2005). *Her own boss: Gender and the pursuit of incompetent play.* Proceedings from DiGRA: Changing Views, Worlds in Play

Jenson, J.& de Castell, S. (2007). *Girls and gaming: Gender research "progress" and the death of interpretation.* Proceedings from DiGRA: Situated Play.

Jenson, J. & de Castell, S. (2010). Gender, simulation, and gaming: Research review and redirections. *Simulation Gaming, 41* (1). p. 51 – 71.

Jenson, J., de Castell S., & Bryson, M. (2003). Girl talk: Gender, equity, and identity discourses in a school based computer culture. *Women's Studies International Forum, 26* (6), 561 – 573.

Jenson, J., de Castell, S. & Fisher, S. (2007). *Girls playing games: rethinking stereotypes.* Proceedings from Future Play: November 15 - 17.

Jenson, J., Fisher, S. & de Castell, S. (2011). Disrupting the gender order: Levelling up and claiming space in an after-school video game club. *International Journal of Gender, Science and Technology, 3*(1),149 – 169.

Jenson, J. & Muehrer, R. (2013). Playing and learning: An iPad game development case study In Escudeiro, P. &Vaz de Carvalho, C. (Eds.). (2013). Proceedings from ECGBL: *The European Conference on Games Based Learning.* Porto: Portugal.

Joan Goaz Cooney Center, (2010). Educational video game challenge unveiled at the White House. Retrieved from: http://www.joanganzcooneycenter.org/press/educational-video-game-challenge-unveiled-at-white-house/.

Jonassen, D. H., & Carr, C. S. (2000). Mindtools: Affording multiple knowledge representations for learning. Computers as cognitive tools, 2, 165-196.

Judd, A. (2015, September 01). New curriculum launched for B.C. public schools. Retrieved July 09, 2016, from http://globalnews.ca/news/2196704/new-curriculum-launched-for-b-c-public-schools/.

Jui-Mei, Y., Chung-Ming, H., & Hwang,G.J. (2011). A game-based learning approach to improving students' learning achievements in a nutrition course. *The Turkish Online Journal of Educational Technology, 10*(2).

Jurgenson, N. (2012). When atoms meet bits: Social media, the mobile web and augmented revolution. *Future Internet, 4*(1), 83 - 91.

Kafai, Y.B. (2000). Video game designs by girls and boys: Variability and consistency of gender difference. In J. Cassell & H. Jenkins (Ed.), *From Barbie to Mortal Kombat: Gender and Computer Games.* Massachusetts, Boston: MIT press.

Kafai, Y. (2003). Children designing software for children: What can we learn? Retrieved from http://0-delivery.acm.org.mercury.concordia.ca/10.1145/960000/953539/p11-kafai.pdf?ip=132.205.7.55&id=953539&acc=ACTIVE%20SERVICE&key=FD0067F557510FFB.B3808E783D2F97DD.4D4702B0C3E38B35.4D4702B0C3E38B35&CFID=423025362&CFTOKEN=82679582&__acm__=1395065938_3a7c6a0aac3844e1a45da188a3917a15

Kafai, Y.B., (1995). *Minds in play: Computer game design as a context for learning.* Hillside, NJ: Lawrence Erlbaum Associates.

Kafai, Y.B. (2006). Playing and making games for learning: Instructionist and constructionist perspectives for games studies. *Games and Culture 36* (1), 36 – 40.

Kafai, Y.B., Franke, M.L., Ching, C.C., & Shih, C. (1998). Game design as an interactive learning environment for fostering students' and teachers' mathematical inquiry. *International Journal of Computers for Mathematical Learning, 3.* 149 – 184.

Kafai, Y.B. & Peppler, K.A., (2007). What videogame making can teach us about literacy and learning: Alternative pathways into participatory culture In Proceedings of the 2007 *DIGRA International Conference: Situated Play*. Tokyo: Japan.

Kafai, Y.B., & Peppler, K.A., (2011). Youth, technology, and DIY: Developing participatory competencies in creative media production. *Review of Research in Education, 35*. 89 – 119.

Kafai, Y.B., & Resnick, M. (1996). Introduction. In Y.B. Kafai & M. Resnick (Eds.), *Constructionism in practice: designing, thinking, and learning in a digital world* (1 – 8). New Jersey: Lawrence Erlbaum Associates.

Kain, E. (2014). Gamergate: A closer look at the controversy sweeping video games. *Forbes. Retrieved from:*

http://www.forbes.com/sites/erikkain/2014/09/04/gamergate-a-closer-look-at-the-controversy-sweeping-video-games/

Katsaliaki, K., Mustafee, N. (2012). Proceedings from the 2012 Winter Simulation Conference. *A survey of serious games on sustainable development.*

Kauffman, K. (2015). Little Chicago learning in Chicago. *Root Knowledge: A grassroots journal by students, parents, educators, 2,* 3.

Kawulich, B.B. (2005). Participant observation as a data collection method. *Forum: qualitative social research, 6* (2).

Ke, F., (2014). An implementation of design-based learning through creating educational computer games: A case study on mathematics learning design and computing. *Computers and Education 73,* 26 – 39.

Kettle, P. (2016). Jane McGonigal on the Blockchain Education Model. Retrieved from http://blog.refactoru.com/jane-mcgonigal-on-the-blockchain-education-model/

Kim, A. J. (2014, November 10). Amy Jo Kim - The coop revolution: 7 rules for collaborative game design. Retrieved July 07, 2016, from https://www.youtube.com/watch?v=NIayQD4qcYc

Klawe, M. (2002). Girls, boys and computers. SIGCSE Bulletin. *34* (2).

Klein, J.I., Rice, C., & Levy, J. (2012). Independent Task Force Report #68. *U.S. Education reform and national security*. Council on Foreign Relations New York: NY

Knox, A. (2006). Why American business demands twenty-first century learning: a company perspective. *New Directions for Youth Development,* 110, 31 - 37.

Kuwulich, B. B. (2005). Participant observation as a data collection method. *Forum: Qualitative Social Research, 6*(12).

Lave, J. (1991). Situating learning in communities of practice. Perspectives on socially shared cognition, 2, 63-82.

Lave, J. (2011). Apprenticeship in critical ethnographic practice. University of Chicago Press.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation.* Cambridge, UK: Cambridge University Press.

Learn to code. (n.d.). Retrieved July 19, 2016, from http://www.codecademy.com/

Learning is Earning 2026. (n.d.). Retrieved July 19, 2016, from http://www.learningisearning2026.org/dashboard

Leonard, D. (2003). "Live in your world, play in ours": Race, video games and consumer the Other. *Studies in Media and Information Literacy Education, (3)* 4. p. 1 – 9.

Leonard, D. (2006). Not a hater, just keepin it real: The importance of race and gender based game studies. *Games and Culture, (1)* 1, p. 83 – 88.

Lessard, C., Neault, G., Rioux, G., Bouchard, J., Bureau-Blouin, L., Chabot, L., . . . Canuel, R. (2015). 15 Years After the Québec education reform: Critical reflections. *Education Canada*.

Li, Q. (2007). New bottle but old wine: A research of cyberbullying in schools. *Computers in human behavior, 23*(4), 1777-1791.

Little, T. (2013). 21st Century learning and progressive education: An intersection. *International Journal of Progressive Education (9)* 1, 84 - 96.

LRNG: Redesigning learning for the connected age : LRNG. (n.d.). Retrieved June 27, 2016, from http://about.lrng.org/lrng-redesigning-learning-for-the-connected-age/

Lucas, B. & Spencer, E. (2013). *Expansive education: teaching learners for the real world.* New York, NY: McGraw Hill

MAGICAL. (2014). *MAking Games in CollaborAtion for Learning (MAGICAL): Final Report.* Italy, Belgium, United Kingdom, Finland.

Make Believe Media, (Producer), & Sharpe, J. (Director). (April 7, 2007). *Corporations in the classroom* [Motion Picture]. Canada.

Malone, T.W. (1980). What makes things fun to learn? A Study of intrinsically motivating computer games. *Palo Alto Research Centre – Congitive and Instructional Research group.*

Media literacy | United Nations Educational, Scientific and Cultural Organization. (n.d.). Retrieved April 03, 2016, from http://www.unesco.org/new/en/communication-and-information/media-development/media-literacy/

MediaSmarts (n.d.). *Media literacy fundamentals.* Retrieved from http://mediasmarts.ca/digital-media-literacy/general-information/digital-media-literacy-fundamentals/media-literacy-fundamentals

Miley Cyrus & Robin Thicke MTV VMA Awards 2013 Performance. Retrieved July 19, 2016, from https://www.youtube.com/watch?v=YFLv9Ns1EuQ

Miller, F. & Gray, E. (2012, January 15). *LEGO friend petition: Parents, women and girls ask toy company to stop gender-based marketing.* Retrieved from http://www.huffingtonpost.com/2012/01/15/lego-friends-girls-gender-toy-marketing_n_1206293.html

Mini-game (2014). In *game development online.* Retrieved from http://gamedev.stackexchange.com/questions/70227/what-defines-a-minigame

Mitra, S. (2003). Minimally invasive education: a progress report on the "hole-in-the-wall" experiments. *British Journal of Educational Technology, 34*(3), 367 - 371.

Mitra, S. (2014). The future of schooling: Children and learning at the edge of chaos. *Prospects, 44*, 547 - 558.

Mitton, P. (Writer), Barth, W. (Studio Director). (2015, March 24). Episode *kids learn computer code in class to help with problem solving* [Radio Episode] In L. Ayuso & S. Berry (producers). *By Design.* Candada: CBC Radio.

"molarity is a state of coded wholes" "The molar body is defined by self-similarity across its variations, or rather its invariant self-identity. It seeks to make an either /or from the both/and." http://www.christianhubert.com/writings/molar___molecular.html

National STEM video game challenge. (n.d.). Retrieved July 19, 2016, from http://www.stemchallenge.org/stem/#/home

Nehring, J.H. & Szczesiul, S. (2015). Redefining high performance in Northern Ireland: Deeper learning and twenty-first century skills meet high stakes accountability. *Journal for Educational Change,* 16, 327 - 348.

Newswire. (June 30, 2003). *Business and education leaders articulate vision for 21st century learning: Report offers recommendations and tools to prepare students for real world* [press release]. Retrieved from http://www.prnewswire.com/news-releases/business-and-education-leaders-articulate-vision-for-21st-century-learning-report-offers-recommendations-and-tools-to-prepare-students-for-real-world-71439287.html

Norman, D. A. (1988). *The psychology of everyday things.* New York: Basic Books.

Norman, D. A. (2013). The design of everyday things: Revised and expanded edition. New York: Doubleday.

Oppress. (n.d.). Retrieved July 11, 2016, from http://www.finedictionary.com/oppress.html

Our staff. (n.d.). Retrieved April 02, 2016, from http://connectedcalifornia.org/about/our_staff

Our vision and mission - P21. (n.d.). Retrieved April 02, 2016, from http://www.p21.org/about-us/our-mission

Page, T. (2012). A shared place of discovery and creativity: Practices of contemporary art and design pedagogy. *International Journal of Art and Design Education, 31 (*2), 67 – 77.

Papert, S. (1980). *Mindstorms.* New York: Basic Books Inc.

P21 (2009). *Curriculum and instruction: A 21st century skills implementation guide.* Retrieved from http://www.p21.org/storage/documents/p21-stateimp_curriculuminstruction.pdf

Pearson, S. (2014). *The process secondary administrator use to implement twenty first century learning skills in secondary schools* (Doctoral dissertation). Retrieved from Proquest (UMI 3628276)

Pearlman, B. (2006). Twenty-first century learning in schools: A case study of new technology high school in Napa California. *New Directions for Youth Development,* (110), 101 - 112.

Pellegrino, J. W., & Hilton, M. L. (2012). *Education for life and work: Transferable knowledge and skills for the 21st century.* Washington, DC.

Peppler, K., Danish, J. A., & Phelps, D. (2013). Collaborative gaming: Designing board games to teach young children about complex systems and collective behavior. Retrieved July 07, 2016, from http://www.academia.edu/7022071/Collaborative_Gaming_Designing_Board_Games_to_Teach_Young_Children_about_Complex_Systems_and_Collective_Behavior

Peterman, K.E. (2008). Field trips put chemistry in context for non-science majors. *Journal of Chemistry Education, 85*(5). p. 645

Piaget, J. & Inhelder, B. (2000). *The psychology of the child.* New York, NY: Basic Books. (Originally published in 1969.)

Pillemer, K. (2015). *30 Lessons for living and loving: Advice from the wisest americans on love, relationships and marriage.* New York, NY: Penguin Group

Pinkett, R. D. (2000), *Bridging the digital divide: Sociocultural constructionism and an asset-based approach to community technology and community building.* Paper presented at the 81st Annual Meeting of the American Educational Research Association (AERA), New Orleans, LA, 2000.

Play Can Your Pet. (n.d.). Retrieved July 19, 2016, from http://www.playcanyourpet.com/

Premier Technology Council. (2010). *A vision for 21st century education.* Vancouver, BC: BC government.

P21. (n.d.). Retrieved July 16, 2016, from http://www.p21.org/index.php

Québec Education Program. (n.d.). Retrieved July 16, 2016, from http://www1.education.gouv.qc.ca/sections/programmeFormation/index_en.asp

Resnick, L.B. (1987). The 1987 presidential address: Learning in school and out. *Educational Researcher, 16*(3), 13-20.

Richard, M. (2005). Body + machine: exploring technological fictions through a collaborative artistic event in schools. *Visual Arts Research, 31* (1), 38 – 52

Richard, M. (2005b). *Culture populaire et enseignement des arts: Jeux et reflets d'identité.* Montréal: Presses de L'Univesité du Québec.

Richard, M. (2005c). *La culture populaire chez les jeunes: Entre projets artistiques et projets pédagogique.* Montréal: Presses de L'Univesité du Québec.

Richard, M. (Octobre, 2006). Projections du corps et fictions technologiques. *Actes du colloque international Projections: des organs hors du corps.* 125 – 172.

Richard, M. (2010). Body and technological fictions. For a renewed art pedagogy through new media narratives. In C. Mullen et J. Rahn (dir.). *View finding: Curriculum perspectives and practices for teaching art and new media*. New York : Peter Lang, p. 183-203.

Richard, M. (2012). Enseignement des arts et dispositifs multimodaux dans les pratiques culturelles des jeunes. Dans M. Lebrun, N. Lacelle et J.-F. Boutin (dir.) *La littératie médiatique multimodale. De nouvelles approches en lecture-écriture à l'école et hors de l'école*. Ste-Foy : Presses de l'Université du Québec.

Richard, M., Lacelle, N., Faucher, C., & Lieutier, P (2015). Productions hybrides/multimodales et apprentissage informel: analyse de quelques pratiques d'artistes et de jeunes. *Revue de recherches en LMM, (2).*

Roth, M. S. (2012, September 5). Learning as freedom. The New York Times. Retrieved July 16, 2016, from http://www.nytimes.com/2012/09/06/opinion/john-deweys-vision-of-learning-as-freedom.html?_r=0

Salen, K. (2007). Gaming literacies: A game design study in action. *Journal of Educational Multimedia and Hypermedia,* 16(3), 301 – 322

Salen, K., Torres, R., Wolozin, L., Rufo-Tepper, R. & Shapiro, A. (2011). Quest to Learn, developing the school for digital kids. *The MacArthur Foundation reports on digital media and learning.*

Salpeter, J. (2003). 21st century learning skills: Will our students be prepared? *Technology and Learning.* Retrieved from http://www.techlearning.com/news/0002/21st-century-skills-will-our-students-be-prepared/64781

Sanford, K., & Madill, L. (2007). Understanding the power of new literacies through video game play and design. *Canadian Society for the Study of Education 30*(2), 432 – 455.

San Tan, S., & Ng, C. F. (2006). A problem-based learning approach to entrepreneurship education. *Education and Training, 48*(6), 416-428.

Schwartz, E. & Stolow, D. (2006). Twenty-first century learning in afterschool. *New Directions for Youth Development,* (110), 81 - 99.

Shariff, S. (2009). Confronting cyber-bullying: What schools need to know to control Misconduct and avoid legal consequences. Cambridge University Press. 32 Avenue of the Americas, New York, NY 10013.

Shumer, R. (200?). A new old Vision of learning, working and living: Vocational education in the 21st Century. *Journal of Vocational Education Research, 26* (3), 447 - 461.

Slonjea, R., Smith, P.K., & Frisén, A. (2013). The nature of cyberbullying, and strategies for prevention. *Computers in Human Behavior, 29*(1), 26 - 32.

Someone Project (Producer). (2016, May 17). Dark side of social media: Hate speech and othering. Retrieved from https://vimeo.com/166793569

Spence, L. (2004). The usual doesn't work: Why we need problem-based learning. portal: Libraries and the Academy, 4(4), 485-493.

San Tan, S., & Ng, C. F. (2006). A problem-based learning approach to entrepreneurship education. *Education and Training, 48*(6), 416-428.

Schwartz, E., & Stalow, D. (2006). Twenty-first century learning in aftershool. *New Directions for Youth Development,* 110, 81 - 99.

Shapiro, J. (2014, April 26). Let's get serious about video games. *Forbes. Retrieved from* http://www.forbes.com/sites/jordanshapiro/2014/04/26/lets-get-serious-about-video-games/

Soule, H. (2015, November 24). Getting it right: What effective teachers tell us about 21st century learning [weblog comment]. Retrieved from http://www.p21.org/news-events/p21blog/1802-getting-it-right-what-effective-teachers-tell-us-about-21st-century-learning-

Spence, L. (2004). The usual doesn't work: Why we need problem-based learning. *portal: Libraries and the Academy, 4*(4), 485-493.

Spradely, J.P. (1980). *Participant observation.* BA, California: Wadsworth.

Springgay, S. (2006). Embodied visual arts assessment through touch: Imag (e) ining a relational arts curriculum. Assessments in art education, ed. P. Taylor, 135-51.

Strauss, V. (2016, March 16). Education researchers blast Common Core standards, urge ban on high-stakes tests. Retrieved July 16, 2016, from https://www.washingtonpost.com/news/answer-sheet/wp/2016/03/16/education-researchers-blast-common-core-standards-urge-ban-on-high-stakes-tests/

Strauss, V. (2012, April 24). National resolution against high-stakes tests released. Washington Post. Retrieved July 16, 2016, from https://www.washingtonpost.com/blogs/answer-sheet/post/national-resolution-against-high-stakes-tests-released/2012/04/23/gIQApRnNdT_blog.html

Szczesiul, S.A., Nehring, J., & Carey, T. (2015). Academic task demand in the 21st-century, high-stakes-accountability school: Mapping the journey from poor [to Fair to Good to Great] to excellent? *Leadership and Policies in Schools, 14* (4), 460 - 489.

Susi, T., Johanesson, M., & Backlund, P. (2007). Serious games, an overview. *Technical Report, University of Sweden.*

TankGirl. (2015). Ghost Hotel [digital drawing].

Taylor, N., Jenson, J., & de Castell, S. (2009). Cheerleeders/booth babes/halo hoes: Pro-gaming, gender, and jobs for the boys. *Digital Creativity, 20* (4), 239 – 252.

Taylor, P., & Maor, D. (2000). Assessing the efficacy of online teaching with the constructivist online learning environment survey.

Testing Protests Expand Across the Nation. (n.d.). Retrieved July 16, 2016, from http://www.fairtest.org/testing-protests-expand-across-nation.

The Alberta Teachers' Association. (2015). Retrieved April 02, 2016, from http://www.teachers.ab.ca/Teaching in Alberta/Resources for Parents/Parent-Friendly Articles/Pages/Do-Corporations-Have-a-Place-in-the-School.aspx.

The Art of Video Games. (n.d.). Retrieved January 26, 2016, from http://americanart.si.edu/exhibitions/archive/2012/games/.

The new literacies: Multiple perspectives on research and practice edited by Elizabeth A. Baker Guilford Press, New York: NY.

Thompson, C. (2006, July 23). Saving the world, one video game at a time. *The New York Times*. Retrieved from Proquest Historical Newspapers: The New York Times (1951 – 2009).

Thompson, D. (2012). Designing serious video games for health behaviour change: current status and future directions. *Journal of Diabetes Science and Technology, 6*(4), 807 - 811.

Tijerino, J.A., (2013). Video gaming, a youth movement we need to get behind. *The Huffington Post Impact Blog retrieved from:* http://www.huffingtonpost.com/jose-antonio-tijerino/video-gaming-a-youth-movement_b_4110930.html

21st Century Learning Skills. (2013). Retrieved April 02, 2016, from http://cdnsba.org/resources/21st-century-learning

Vahdat, M., George, S., & Serna, A. (2013). Wizard of Oz in designing a collaborative learning serious game on tabletops. *International Journal of Information and Education Technology*, *3*(3), 325.

Vygotsky, L.S. (1978). *Mind in society.* Cambridge: Harvard University Press.

Walkerdine, V. (2007). *Children, gender, video games: Towards a relational approach to multimedia.* New York, NY: Palgrave Macmillan

Watson-Gegeo, K.A. (1997). Classroom Ethnography. In N.H. Hornberger & D. Corson (Eds.), *Encyclopedia of language and education volume 8: Research methods in language education* (pp. 135 - 144). Norwell, MA: Kluwer Academic Publishers.

Wendel, V., Gutjahr, M., Gobel, S., & Steinmetz, R. (2012, April). Escape from Wilson Island: A multiplayer 3D serious game for collaborative learning in teams. Proceedings of the *4th International Conference on Computer Supported Education: Designing collaborative multiplayer serious games for collaborative learning*, 199-210. doi: 10.5220/0003899801990210

Wenger, E. (2001). *Supporting communities of practice: A survey of community oriented technologies. Retrieved from* http://wenger-trayner.com/resources/

Williams, D., Martins, N., Consalvo, M., & Ivory, J.D. (2010). The virtual census: Representations of gender, race and age in video games. *New Media and Society. (11)* 5. p. 815 – 834.

Williams, B. (2005). Case based learning—a review of the literature: is there scope for this educational paradigm in prehospital education?. Emergency Medicine Journal, 22(8), 577-581.

Wilson, J.I. (2006). Twenty-first century learning for teachers: Helping educators bring new skills into the classroom. *New Directions for Youth Development,* (110), 149 - 154.

Wu, B., & Wang, A. I. (2012). A guideline for game development-based learning: A literature review. *International Journal of Computer Games Technology, 2012, 8.*

Yu, T.W., (2009). Learning in the virtual world: The pedagogical potentials of massively multiplayer online role playing games. *International Education Studies, 2*(1), 32 -

Appendices

Appendix A: Questionnaire #1, November 14, 2014

Arcade Our Way

November 14th, 2014

Name:

Age:

Birthday:

How long have you been going to this school?

Video games

1. Do you play video games? Yes No

2. If yes, how often do you think you play per week? (circle)

15 min – 1 hr 2hrs – 3hrs 4hrs – 5hrs 5hrs – 6 hrs wayyy more

3. Do you have a favourite video game, boardgame, card game or other types of games? (list as many as you want!) _____

_____

_____

_____

4. Can you think of any games that teach something about leadership? If so what game or games and what do you think they teach about leadership?

_____

_____

_____

_____

_____

5. Have you ever *made* a game, or video game? Yes No

6. If yes, can you describe the game or games on the back of the page?

7. Have you ever thought of a future working in the video game industry? Yes No

Thoughts about Leadership

8. What are the first 5 words that come to mind when you think "leader"?

_____

_____

9. What, if anything, do you think it is important for people to know about "leadership"?

_____

_____

_____

_____

10. Can you think of someone you think is a great leader? Who is it, and what makes them a great leader in your eyes?

_____

_____

_____

_____

_____

_____

Appendix B: Questionnaire #2, April 1, 2015

Arcade Our Way

April 1st, 2015

Name:

Age:

Birthday:

How long have you been going to this school?

<u>Video games</u>

1. Do you play video games? Yes No

2. If yes, how often do you think you play per week? (circle)

15 min – 1 hr 2hrs – 3hrs 4hrs – 5hrs 5hrs – 6 hrs wayyy more

3. If you *do* play video games, why do you? If you don't play video games, why don't you?

4. Do you have a favourite video game right now? (list as many as you want!)

5. What apps are you into right now, or what are your favourite things to do on your computer/phone/device? (list as many as you want!)

Appendix C: Questionnaire #3, December 7, 2015

Arcade Our Way

@The The School School

December 7, 2015

Name:

Age:

Birthday:

How long have you been going to The School?

1. Do you play video games? Yes No

2. How often do you think you play per week? (circle)

15 min – 1 hrs 2hrs – 3hrs 4hrs – 5hrs 5hrs – 6 hrs wayyy more

3. If you *do* play video games, why do you? If you don't play video games, why don't you?

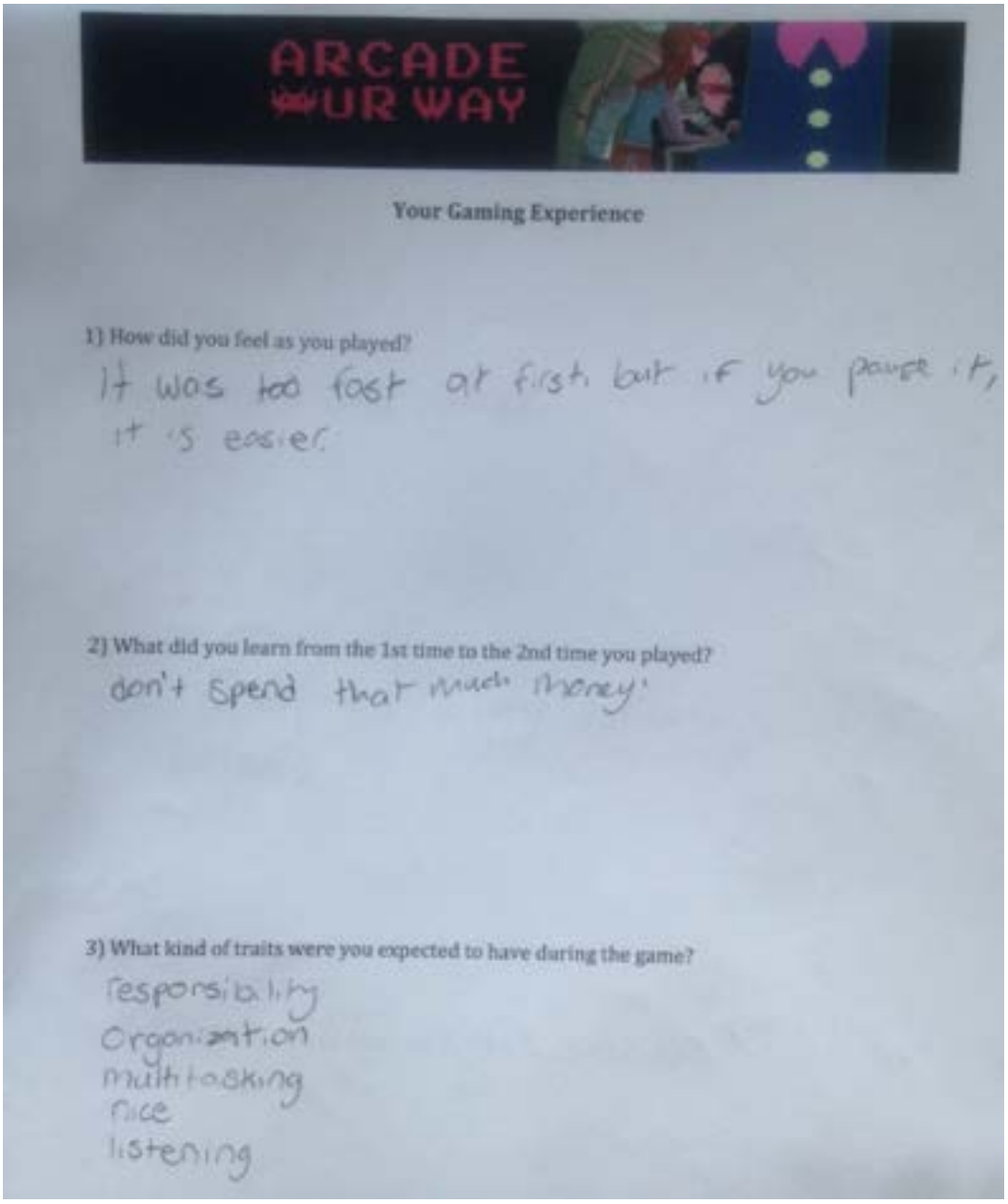
4. Do you think there are other types of reasons people play or make games?

5. Do you have a favourite video game right now? (list as many as you want!)

6. What apps are you into right now, or what are your favourite things to do on your computer/phone/device? (list as many as you want!)

7. What kinds of things do you share publicly online?

Appendix D: Three Question Reflection McDonalds Video game, November 14, 2014



Appendix E: Game Design Document example (Character Sheet), April 1, 2015

Character Bible

In a Game Design Document, the “Character Bible” is a detailed description of the main and supporting character’s personality and image. In the game TB2 there are 8 characters in total. As an example, here are three of the eight characters in TB2.

Player Character

The Player Character is a young reporter. You can choose their gender. He/She is adventurous and eager to take risks in order to succeed. This character is customizable and it is up to you to define him/her through the decisions you make while playing.

Adilah Koumama

Adilah is a peaceful and warm character. You can find her at the marketplace when you need information or clues for your investigation. She likes the fact that you're investigating on her country's struggles and helps you in exchange.

Barry Kingston

Barry is a another reporter who's very charming and charismatic, but who uses unethical methods to get his scoops. He shares a similar experience as you do and can be helpful, but you learn throughout the game that you shouldn't trust him.

Character Development Mission

Now it's your turn!

Let's design 3 characters for Ghost Hotel.

Based on the 3 characters above, what are your ideas for Ghost Hotel:

1 - A player character

Would it have a gender ? If yes, which one ?

What are their leadership qualities ? What are their weaknesses ?

2 - A helpful/trustful/resourceful character

Is it a fellow ghost or another creature/human ?

How would they help you ?

What would be their personality traits ?

Where would they be located in the hotel ?

3 - A character that makes things harder for you

Is it a fellow ghost or another creature/human ?

What would they do to prevent you from succeeding at your missions ?

What would be their personality traits ?

What’s their mission in the game ?

Appendix F: The Fourteen Features of Nurturing Affinity Spaces Ranked According to Relative Strength.

Montréal Context	1	2	3	4	5
Features	**1 example of this feature took place in this context**	**2 different examples of this feature took place in this context**	**3 different examples of this feature took place in this context**	**4 different examples of this feature took place in this context**	**More than 5 different examples of this feature took place in this context**
1. Common endeavour is primary (versus race, class, gender, disability)					X
2. Affinity spaces are not segregated by age.				X	
3. Newbies, masters and everyone share a common space.					X
4. Everyone can if they wish produce and not just consume: **Some portals are strong generators.**				X	
5. Content is transformed by interaction: **internal grammar is transformed by external.**					X
6. The development of both specialist and general knowledge are encouraged and specialist knowledge is pooled.			X		
7. Both individual and distributed knowledge are encouraged.				X	
8. Tacit knowledge is [illegible]			X		

pages

1. Newbies, masters and everyone share a common space.
2. Affinity spaces are not segregated by age.
3. Content is transformed by interaction.
4. People get encouragement from an audience and feedback from peers, though everyone plays both roles at different times.

5. Common endeavour is primary (versus race, class, gender, disability).

Montréal Context	1	2	3	4	5
Features	**1 example of this feature took place in this context**	**2 different examples of this feature took place in this context**	**3 different examples of this feature took place in this context**	**4 different examples of this feature took place in this context**	**More than 5 different examples of this feature took place in this context**
9. Many different forms and routes to participation.			X		
10. Many different routes to status.				X	
11. Leadership is porous and leaders are resources.					X
12. Roles are reciprocal			X		
13. A view of learning that is individually proactive, but does not exclude help, is encouraged.				X	
14. People get encouragement from an audience and feedback from peers though everyone plays both roles at different times.				X	

6. Everyone can, if they wish, produce and not just consume.
7. The development of both specialist and broad, general knowledge are encouraged, and specialist knowledge is pooled.
8. Both individual and distributed knowledge are encouraged.
9. Tacit knowledge is used and honoured.
10. Many different routes to status.
11. Leadership is porous and leaders are resources.
12. A view of learning that is individually proactive, but does not exclude help, is encouraged.
13. Many different forms and routes to participation.
14. Roles are reciprocal.

Toronto Context	1	2	3	4	5
Features	**1 example of this feature took place in this context**	**2 different examples of this feature took place in this context**	**3 different examples of this feature took place in this context**	**4 different examples of this feature took place in this context**	**More than 5 different examples of this feature took place in this context**
1. Common endeavour is primary (versus race, class, gender, disability)	X				
2. Affinity spaces are not segregated by age.			X		
3. Newbies, masters and everyone share a common space.				X	
4. Everyone can if they wish produce and not just consume: **Some portals are strong generators.**		X			
5. Content is transformed by interaction: **internal grammar is transformed by external.**		X			
6. The development of both specialist and general knowledge are encouraged and specialist knowledge is pooled.			X		
7. Both individual and distributed knowledge are encouraged.		X			
8. Tacit knowledge is used and honoured.			X		

ges

Toronto Context	1	2	3	4	5
Features	1 example of this feature took place in this context	2 different examples of this feature took place in this context	3 different examples of this feature took place in this context	4 different examples of this feature took place in this context	More than 5 different examples of this feature took place in this context
9. Many different forms and routes to participation.	X				
10. Many different routes to status.		X			
11. Leadership is porous and leaders are resources.	X				
12. Roles are reciprocal	X				
13. A view of learning that is individually proactive, but does not exclude help, is encouraged.		X			
14. People get encouragement from an audience and feedback from peers though everyone plays both roles at different times.			X		

Appendix F1: The Fourteen Features of Nurturing Affinity Spaces Ranked According to Relative Strength Rubrics

Appendix G: Recommendations: Towards AoW as a Nurturing Affinity Space

Recommendations: Common Endeavour is Primary (versus race, class, gender, disability). Where AoW can be improved in terms of the common endeavour being primary, is by involving the entire team in the project details and decisions from the very beginning so that all participants have the opportunity to engage with and set up the details related to the project. The youngest participants would have participated in the development of themes and directions of the game more directly, and their passions and interests would have been engaged from the genesis, ensuring the endeavour took its central position. Most major decisions related to the direction of the project took place prior to the initial contact with the grade seven participants, and the website was created without their direct participation. Had they been involved from the beginning, the idea of the common endeavour would have had a deeper hold.

The recommendation is for the project to involved the full team in all decisions from the beginning to deepen the collective connection to the topic and project, therefore more truly enabling the common endeavour to be primary. This necessitates that the team be more closely situated geographically, and that the method of communication is established and tested prior to the the project getting started. As suggested by the youngest participants, for these communications to really take hold, they should be through a platform that they use for the most part already in their everyday lives so that integration is seamless. The group should work together to make the decision and whatever platform is chosen for communication. It should be tested until everyone is able to integrate it within their everyday practices. Following this,

establishing the theme to be explored and some form of environmental scan and literature review based on themes of interest could be conducted involving anyone interested, using approaches discussed collectively. An online platform established at the beginning by all, would mean that resources could be compiled and made available for all to see. This would contribute to many other aspects of affinity spaces, particularly #7: "The use of dispersed knowledge is facilitated."

Recommendations: Affinity Spaces Are Not Segregated by Age. Intergenerational learning and mentorship carried the strongest impact related to this feature of nurturing affinity spaces. I think this should be the focus of research in future iterations, and that more opportunities for casual encounters outside of official meetings and workshops should be factored in. Running the project through a long term partnership with a school will optimize the intergenerational knowledge exchange.

Recommendations: Newbies, masters and everyone share a common space. A more nuanced understanding of what was learned should be more deeply examined from the perspective of the participants through project journals in future iterations of the project.

Recommendations: Everyone can produce and not just consume if they wish. In future iterations, I would suggest that workshops be less structured, and that all participants are involved in the actual design of the workshop. Conceptually related to Gee's description of semiotic social spaces, portals (in this case the workshop plans) would be generators, if all participants were involved in the planning. I think initially at least, it would make sense to move the project out of the classroom and into a lunchtime or after school time slot in support of learning to break these habits.

Though there were choices involved in the project to some degree[29], these choices were generally superficial. The exception here involved the most powerful energizing moment related to the project when the grade seven participants were developing the game design documents (GDD). They chose the area of the GDD they wanted to work on (characters, storyline etc..) Overall however this was a weak affinity space feature in relation to AoW. Choice should become the default habit in relation to AoW as an affinity space. This would require the freedom to leave the space at any point, or to lurk, watch and explore the space at one's own will. A more appropriate set-up in a physical space could involve for example areas where participants can post related images and text. Participants could spend time manipulating the space or looking at various types of posts by others, and providing feedback. It could involve an online environment as well, but I think the idea of a physical space related to the project is an important contribution that schools specifically, conceived as affinity spaces can contribute to learning. A longer term relationship with a school over time would enable the allocated physical spaces to become real working studios. Over time, students in the school could come to discover the space of their own accord. This could also involve opportunities for the public school students to have access to a space within the partnering university. In the physical spaces participants could post drawings, poetry, character drawings, fan fiction, and alternative narratives related to the project. These ideas would allow more options for forms of production and consumption within the affinity space.

Recommendations: Content is transformed by interaction. What will be important moving forward is to create more ways for the youngest participants to be involved directly in all

[29] For example youngest participants chose to participate in online and offline discussion; they chose to jump right in and play the McDonalds game; they produced the main story lines and game details

game design decisions. Though responsiveness on behalf of teachers enables student involvement in content transformation in a sense, more entry points for direct participation on behalf of the youngest participants will be necessary to strengthen this feature of AoW as nurturing affinity space. This is also important because most of the face to face structures implemented in the classroom with the grade seven participants were more or less typical pedagogical strategies that imposed actions on the students rather than allowing for choice or the option to structure their own ideas for action.

Recommendations: The Development of Both Specialist and Broad, General Knowledge are encouraged and Specialist Knowledge is Pooled. In addition to live descriptions of tools and techniques, the creation of video based tutorials throughout the game making process, would have been ideal so that people could access the information any time.

Recommendations: Both individual and distributed knowledge are encouraged. More opportunities for posting and sharing knowledge will be important.

Recommendations: Tacit Knowledge is Used and Honoured. In future iterations of the project opportunities to create and post tutorials would strengthen this element of nurturing affinity spaces, as would more opportunities to play both video games and paper games.

Recommendations: Many Different Forms and Routes to Participation. As mentioned in relation to other features of nurturing affinity space in relation to AoW, however, future iterations of AoW will need to really leverage this and related features in order to make the project a worthwhile as a powerful example of a progressive learning space.

Recommendations: Many different routes to status. This feature can be improved and strengthened particularly in relation to the youngest participants. In future iterations of the project, when participants have more option for sharing interesting thoughts and discoveries through various on and offline platforms, options for routes to status will also be further extended

Recommendations: Leadership is Porous and Leaders are Resources. What was important in relation to the Montréal team was the attitude and character of Nancy Drew. Technically, she could be said to have been in charge of the project. She conceived of the idea initially and was accountable to the professors from whom Hermione Granger and Clementine were receiving grades. If she were more controlling she may have imposed strict deadlines and goals on the team. With the exception of some challenges towards the end of the project, Nancy Drew was not like this. She was able to ensure the project kept progressing, yet each individual person was autonomous. Her natural tendency to work collaboratively was important to the integrity of this feature of affinity spaces related to the Montréal team. Obviously improvement in relation to the Toronto team requires geographic proximity and collective establishment of more appropriate online communication.

Recommendations: roles are reciprocal. What ultimately held the project together were regular points of contact where the Montréal team shared progress, information, challenges and ideas and everyone contributed to courses action and strategies for overcoming challenges. In this sense roles were reciprocal. Towards the end of the project Lisa Simpson did not communicate schedule details and game details to the rest of the team. This would partially be due to the fact that towards the end there group meetings were less consistently held. This problem could be avoided in the future by ensuring the meetings do not stop for any reason and

by making clear the importance of regular communication and of seeking help when help is needed.

Recommendations: A view of learning that is individually proactive but does not exclude help is encouraged. Ideal would have been for the prototype to have been completed at the end of phase one with consistent interns. By the end of phase one Hermione Granger had created a prototype but it was not complete to the point we all felt comfortable presenting it as the final project. This was not the fault of Hermione Granger. It was simply a matter of running into more challenges than we expected. Involvement in decisions from the beginning by core interns in future iterations of the project will be empowering and key to encouragement of pro-active attitudes and comfort and confidence seeking help.

Recommendations: People Get Encouragement from an Audience and Feedback from Peers, Though Everyone Plays Both roles at Different Times. Throughout the project all team members fluidly moved between being an encouraging audience for the work of the others, while also providing feedback in the form of suggestions, praise and nudging or probing to rethink or reconsider ideas on a deeper level. These elements were key and should be modelled: Encourage and comment on appreciated work; provide suggestions as suggestions not demands: “have you thought about this”; nudge or probe more deeply if something is unclear or if you disagree, but ultimately understand it’s the creators choice: “tell me more about this”

Appendix H: Guidelines for Future AoW project iterations

This case-study provides a model upon which to base future iterations of this and other such projects. As discussed in Chapter 3, no two projects will ever be the same. This case-study and pilot project, however, provides a basic project structure with stages of the project and key advice so that future iterations of this project could potentially move forward more smoothly. The following structure was derived from the AoW project as it actually took place. The elements written in italics are recommended adjustments based on my research reflections:

1. The planning stage (interns establish themes and create workshop *with* grade sevens);
    - *Develop main communication strategies with all participants*
    - *create a project website or information hub with all interested participants*
    - Explore a theme of interest. *Invite youngest participants to participate*
    - Literature review including rounding up video games related to the theme. *invite youngest participants to participate.*
    - Planning of workshop (key components: theme exploration through activities and discussion; play related video game/s; reflect on video games; work on concept sheets. *suggest teams, but students can choose to work alon*e. share main game concept ideas.
    - Practice workshop for local gaming community for feedback.

- *Celebrate: other strategies can be established as "celebration", but post some details online (ie/photos of practice workshop) at end of each stage at the minimum.*

2. The idea gathering stage (concept sheets):

- Conduct workshop. *play more than one game example.*
- Create game concept sheets *in pairs or groups.*
- Celebrate: post details online. E*mbed a way for all participants to receive notice of news*.

3. the mining stage (establish two story directions with artistic representations):

- Tally main game structures and moods. choose most popular ones.
- List any unique or striking details from concept sheets.
- *Involve youngest participants in above two events* or *share above two findings with youngest participants immediately for feedback.*
- Build two storylines based on these details - *involve youngest participants in process* or have them vote on their favourite.
- Establish main character details drawn from concept sheets (age, form ie. human, alien, etc.).
- *C*reate corresponding visuals. *Share the visuals immediately, post them, online (we did this, but ensure students have opportunity to see)*
- Celebrate. post details online. *Ensure participants receive updates.*

4. The story and character selection stage:

- Final directions decided by youngest participants.

- *C*elebrate. Post details online*. Ensure participants receive updates.*

5. The GDD stage (characters, plot, point system, inventory, aesthetics);

- Students choose Game Design Document area of interest.
- Students provided with guide sheets with examples from actual GDD and a mission (see appendix E).
- Students present their section of GDD.
- Any adjustments made to synch up details.
- C*elebrate: post details online (ensure participants receive update).*

6. The game jam stage:

- Game jam team have two days to develop 2-3 game pitches and present to team at the end of each day or first thing in the morning.
- Game jam team has access to wide variety of paper and video games
- Receive feedback from rest of team.
- Team votes on final vision or sends game jam team back to drawing board if a choice cannot be made.
- C*elebrate: post details online. ensure participants receive updates.*

7. the prototype stage:

- Students play the game prototype.
- Focus group format - questions asked pertaining to game and/or research.
- Focus groups approves game or makes suggestions for changes.
- Celebrate: post game online. ensure participants receive update.

8. *Officially launch game for school community and beyond.*

Appendix I: Workshop #1 Plan

Workshop Agenda

Time

Details

Activity

Lead Person

8:30 - 8:45

Intro of the team and what is going to happen in the workshop.

Renee

8:45 - 9:30

Lead activity: Who can be a leader.

Short concluding presentation about important leadership traits and examples of women leaders that have those traits. (mythbusting) :)

See Session 1 Who Can Be a Leader”

Hermione Granger (with help of Renee and Clementine).

9:40 - 10:40

Students in groups of 4 playing a game and together filling in a short questionnaire about leadership after playing.the game

Short concluding presentation highlighting power of games to “try out” roles and some examples of important leadership qualities that come out in the games.

Game Playing

#1. Pandemic (board game)

#2. Spaceteam ?

#3. McDonalds Video Game

Clementine (with help of Hermione Granger and Renee)

10:40 - 11:40

Intro to game concept sheet through Get Water! as an example

game concept sheet

Clementine and Hermione Granger -

underlying capacities - not gender, but what are the traits that make a better leader -

Renee 8:30 - 8:45 (speaks for 5 minutes, 10 minutes to fill in entrance survey)
Project Introduction

materials - entrance survey

This project is called Arcade Our Way! What comes to mind when you hear this title?
I'm Renee, I am a Phd candidate at Concordia university and I teach teachers at McGill – I was the visual arts teacher here at The School from 2004 – 2007
My research is about video games and education, and I am here as a researcher building this project with the team and watching it unfold
This is Hermione Granger and Clementine Clementine studies communications at Concordia and Hermione Granger studies womens' studies and cognitive science at McGill and is learning to make video games
We all work with a small gaming company that makes games for change, or games with a social message – the first one I looked at last year with the grade 6s was about water and how girls get pulled from school to get water for their families in some countries like India
Last year I was lucky enough to work with the then grade sixes – some of whom are in the room right now!
I spent time with them in their classes hanging out – we talked a bit about games and technology
They played a game called get water! and let me know their thoughts about it

Of everything they had to say, they shared a lot of information about the playability of the game – what liked, what they would change

So it made sense to come back and work together to make a game

Because you go to The School, we think of you as the kind of girls who can teach others about how girls can be leaders, in a real way that really shows them something about how leadership CAN be, because there are a lot of things wrong with the version of “leader” we see around us

We think games are a great way to show and teach people things in a fun way

So your mission is going to be to direct the creation of this game…. To come up with the details…..and then we are going to take all of the information, go away and come back with a prototype for you to test out and give us feedback on … we’ll make any adjustments you suggest

And then the game will go out into the world so other people can learn about girls and leadership through you

before we get to this, we will spend some time thinking about the topic of the game, leadership - Hermione Granger will start us off with a few thought exercises and role-playing and then with Clementine we will play a video game and talk about leadership and games, and then the final part will be the first step in game making which is brainstorming ideas and concepts

I am going to be audio recording this workshop so that we don’t forget anything you say

how many of you play video games? how many play a little bit? a lot? what is your favourite game?

In order for us to get to know a bit more about you we have a mini questionnaire

Hermione Granger 8:45 - 9:30

Thinking about Leadership

Materials - pens, blank paper, marble/rock/coin for each girl

Goals:

Method (15 min):

Everyone gets a sheet of paper and must write down what they think is the most important characteristic of leadership. Prompt girls to consider specific leaders in their lives when brainstorming this characteristic.

Place all traits on the floor where they are visible to everyone

Round 1 - everyone put a marker on what they believe is the most important leadership trait

Repeat for two more rounds

Observe and discuss

Discussion (20 min)

Why do we consider these traits important for leadership?

To what extent are leaders born with these traits and to what extent must they learn and practice?

Are all of these traits absolutely necessary for leadership?

Do you see some of these traits in yourselves or people your age?

Are these traits related to gender?

Scenarios (25 min)

Split girls into groups of 4 and give each group a scenario to talk through (or plan a skit if time allows)

You are president of the school yearbook and must make sure that lots of different teams are getting their work done. You're nervous about the idea of giving a speech to motivate everyone, but you want to find a creative way to keep everyone on track. What strengths can you bring to the team?

You are a counselor at a summer camp and need to quiet down and assemble your group in order to give them directions. Your voice isn't as loud as some of the male counselors, but how

can you effectively lead your group anyways? Come up with a creative strategy that you've never seen.

You are editor in chief of the school newspaper and have a tight deadline for the finalized paper. You need to make sure everyone is working hard to reach the deadline, but you're not quite sure how to motivate everyone. After all, being strict and bossy has never been your style. What approach will you take?

You are captain of the soccer team and have been planning a team sleepover packed with bonding activities and fun. The whole team is expected to go--after all, team spirit is not optional. One teammate comes up to you and says she can't go because she has to babysit that night. How can you make her feel included and part of the team?

What personality traits did you use in these leadership scenarios?

→ Together we've created new strategies and new ideas for how people can be good leaders!

→ Clearly, leadership is about having a toolkit of strategies and personality traits ready to use. Different people use different tools to lead and practice can help you acquire and strengthen new tools!

Clementine : 9:40 - 10:40

Leadership and Games

Workshop notes for The School Girls

Part 1

Materials: 5 laptops, questionnaire x 20

Why we are looking at games - connection with that Hermione Granger did (2min)

Advertisements, what we see on TV, magazines, or even films, often show us the same kind of girls and the same kind of boys. And it's a bit problematic because when we constantly see the same representations of people, we tend to think that there is only one definition of being a girl or a boy, and therefore one definition of being a leader. So changing the way female fictional characters are portrayed in movies for example, can have an impact on real life !

In the Hunger Games for example, we have Katniss, who's a female superhero. And it's cool because most of the time, it's more super strong men who are the powerful ones.

So what we want to do today, is use games to counter these representations/ideas, and show that it is possible to :

Change the way people perceive leadership by offering a new way of seeing things.
Do good things, such as achieving social change by educating people about it

We think that game are the right way to do it because :
they are interactive
they involve fiction, so everything becomes possible
they enable you to try different roles through the characters you get to be when you play

So what we want to do now is try a game, get to know an inspiring character, and then design together a new game that will lead to gender equality in leadership.

Guidelines (3min) :

So now you will all play the McDonald's video game. Put yourselves in groups of 4. I will play in front of you and show you how it works.

I play once

Now it's your turn ! You will be playing as the CEO/leader of McDonald's. It means that you will have to make sure that everything is functioning well, from the agricultural section to the headquarters.

I suggest that you each play 5 minutes. Those who are not playing can still give advices to the player. I will also be around to give you some tips !

When you're done, you will have to answer 3 questions. You can read them now and start thinking about your answers while you're playing.

Gaming (20-30 min)

Questions (15)

How did you feel as you played ?
What did you learn from the 1st time to the 2nd time you played ?
What kind of traits were you expected to have during the game ?

Conclusions (15min) :

Why do you think that we chose this game for you ? (remember there are two points - games are powerful teaching tools, and although it's not explicitly about being a leader, it's interesting for us

to talk about because it puts you in the position of a kind of leader). Does the game teach us something about McDonalds? What qualities of a leader were asked to demonstrate (involved?) in this game ? Are there other qualities our game could focus on when it comes to leadership? Do you think the goal of our game will be the same kind of goal? what might a goal be for our game?

Write down qualities of a leader learned the game (on a board or on a projected doc).

McDonalds Game :

Leadership is :

- Multi-tasking
- Managing different people while facing different variables
- Anticipation and planification
- Aiming for success (Even if the definition of success here is about making money, you can have your own definition of what success is. It will depend on your projects.)
- Doesn't require to be a girl or a boy
- Failing and starting again in order to become better at what you do

So you can see how :

games have the power to teach us things in many ways

Being in a leader’s shoes can be stressful.

How leadership is about being driven by success (whatever your definition of success is)

Leadership is about making sure that everyone in your team is satisfied.

You also learned that you can’t have control on everything

And that you will often have to improvise & come up with new solutions to the problems you will have to face.

Part 2 (15-20 min)

What we just did here was more about analyzing your behaviors or roles as players during the game in order to draw some characteristics of leadership. Now I'll give you a more human example. It's a female videogames character who is almost your age, and who is super powerful ! Try to think about what kind of leader she is while I'm presenting her to you.

Clementine in The Walking Dead

Context :

The Walking Dead is a video game made by Telltale. Has anybody played it? Telltale is an american independent video games developer that is specialized in episodic gaming, which means that they often do games based on series. They made a game not only for The Walking Dead, but also for Law & Order, and Game of Thrones for example, so it's a pretty big company.

Story and who is Clementine :

Clementine is a little orphan girl trying to survive in a post-apocalyptic world full of zombies. We get to know her from 8 to 11 years old. She is at the beginning of the game protected by Lee, but then she has to survive alone.

She's
mature
social
acts as a moral compass in every group of survivors she's part of
She's brave, and often takes risks.

She’s very good at improvising in emergency situations.

She misses her parents, cries, needs affection... So she is also sometimes vulnerable.

→ But she uses her weaknesses to turn them into a positive energy.

I wanted to talk to you about her because the interesting thing in the game is the fact that you get to choose what she says or does. So you, as a player, can make the story, and decide if she is a leader or not !

For example, when 2 people are fighting, you are asked to choose if you want to intervene or not. And then you have to decide who is right.

→ Having things to say and having the power to change situations are traits of being a leader.

What lessons can we learn about Clementine ?

Ask the girls for their answers. Add some of these points if they don’t evoke them first :

You can have weaknesses but still be strong enough to be in leadership positions. Being vulnerable can actually be an asset, because it makes you relatable to people.

Saying what you think and influencing others is also an aspect of being a leader.

There’s no age for being a leader, as Clementine is usually much younger than the people she’s with, but still manages to convince them.

It’s really good to create a mentorship relationship with someone who inspires you. This person who has more experience will guide you, and share both her network et knowledge with you. In exchange, you can teach her things that she doesn’t master yet (if the person is older than you,

there are chances that they need technical support on social networks, for example!) →
Example of me and Latifa Jbabdi

But do not forget that you can still be independent in this phase, and after a while, stand on your own feet. Being able to liberate yourself from the leaders that preceded you and build on what they did, will empower you.

General Conclusion (5 min) :

So what did you learn during the hour you just spent with me ?

Add :
Creating a new definition of leadership is possible. There isn't a unique model of leadership. There aren’t enough of them, but we still have really good female leader examples in famous video games.

Workshop Part 3: Game Concepts
10:40 - 11:40

Introduction (3 min)

hand out concept sheets
Our task now is to come up with ideas for the game we are going to create - the first phase of game making is to start to build the main “concepts” of the game
there are many details that go into the creation of a game
what are some of the components of a game that come to mind?
list anything the girls come up with

turn to slide #7 - The School Workshop part 3: story sequence to game prototype

your task is going to be to each come up with your own ideas for this game we are building together about gender and leadership through a game concept sheet - you can each fill in your own ideas…. if you are a person who likes to doodle and draw, you can add these kinds of details to your sheet

we will take away your ideas and look for commonalities and patterns between them, and from these parts that you provide, combine them to create a game prototype

we will bring this prototype to you in a few months for another workshop where you will let us know what you think and what you want to change, and we will do just that!

once you are happy overall with the game, we will share it with as many people as we can so that they can learn how to be a real leader, from your perspective!

Activity (45 min)

so lets fill in the game concept sheet one section at at time - we'll look at one section at a time and talk use the game get water! as an example

ask for examples from other games?

have them fill in one section and then look again at slides

Game Concept Sheet

Target audience: who do you think it is important to talk to about leadership?

Step 1: Message and Story

What's the core message of your game?

What kind of a story do you want to tell?

Who's point of view is the story told from?

Step 2: Main Character/Being

Who's shoes is the player stepping into?

What are the defining features of this character/being?

Step 3: Player Actions

What are the one or two main actions the player can do?

Step 4: Other Characters

Who can the player talk to or interact with?

Step 5: Objects

What kind of interactable objects are there?

Step 6: Game World

How does the player experience the world ?

Step 7: Storytelling

How is the story in the game told?

Notes: Is the story told through character dialogue, through audio recordings, or simply through what the player sees? Remember that you can also tell it through the player's actions! Keep it simple in any case though!

Step 8: Game World and Mood

Where is the game taking place?

What does it look like in the game's world?

What does the game world sound like?

Conclusion (5 min)

It has been such a pleasure working with you today… the ideas are really exciting, we're looking forward to exploring them more closely and coming back again to see you in a few months!

share Tumblr as a place where students can remain connected with the project

we will also send email updates to the grade 7 list serve!

Appendix J: Workshops #2 Plan

Plan for Workshop at The School

2 hours

Rationale

The main purpose of this visit is to reconnect with the girls and to increase their motivation in relation to the Arcade our Way project. In addition, we will take the opportunity to gain as much insight as we can to further game details. The main focus of their work will be to develop details related to: Plot summary; character bible; inventory; point system; aesthetics

The main goal of the game is to shift the hotel leadership from a not so great situation to one that is more collaborative and better for the ghost workers.

Logistics

need

need projector, computer, dongle

create 1 sign with each group responsibility (Character bible; point system; aesthetics; plot summary; inventory), each a different colour…. have 3 “tags” the same colour and hand these out to form groups - signs go on group table so everyone can see

print the GDDs for each group and place in folders - clearly label front of folder

set up

girls will be working in 5 groups of 3 – 5 main tasks will take place

place signs on tables

have main GDD open to show

have TB2 open to show

“intro” slideshow and video

wiki open

website open

survey monkey

Introduction (20 minutes)

play greeting video from team

show website

look at wiki - what would be the best way to easily communicate with you - to show images and get further ideas and opinions on details for game? Instagram? text?

plan to provide a “tour” of the advances that have been made with the project (see presentation.

1. remind them of the leadership qualities list
2. brief explanation about how we pulled ideas from their concept sheets + list of interesting details
3. arrived at two story-lines inspired by their ideas
4. character ideas – refer to what they have shared on wiki
5. main character vote and details
6. 2nd character M. LeFromage as manager
7. backstory and goal
8. kitchen space…?

Activity Part 1: 40 minutes

TB2 is a game about the newest journalist at Hermes International, your first beat has you travelling to Timbuktu, where the city’s rich collection of cultural and academic manuscripts is

threatened by mounting political tensions. Project Sahara is a story-driven Adventure/RPG with management elements and a focus on journalistic integrity.

show TB2 game

Show TB2 GDD - This is what the Game Design Document looks like - we are going to use this as a model to help us plan more details about our game, Ghost Hotel

Write task categories on the board: Character Bible; POint system; Aesthetics; Plot Summary; Inventory…. Ask what they think each group is about? What type of person would enjoy working on this area? Ask "who would like to be in the___ group?" and hand them a "tag" - some will have to be randomly distributed

these folders contain your mission for the day, based on your category - you will have about half an hour to develop your ideas, following the TB2 model

What will be particularly challenging about the fact that you are working on all 5 missions at once - especially for the plot summary writers? need details from other groups. How can we solve this problem? Send a "reporter" to ask them key questions.

We will also have each group give a mini-presentation of their main ideas in 30 minutes. You can ask questions that you need answers to, and then you can take a few more minutes to adjust your own details accordingly

Hand out GDD folders with tasks for each group

Activity Part 2: 15 - 20 minutes

briefly present their main details

groups ask questions re/key details they require

how do we think we can make sure all of the ideas connect to each other?

Activity Part 3: 15 minutes

adapt and refine your task in relation to presentations

Extensions

can you find any music or interesting sounds? https://www.freesound.org/browse/

Conclusion

really need to get a good communication flow going so that you guys are as involved as you can be --- the intention is for big decisions related to the game to be yours… a bit trickier than I imagined long distance

Can we create a brief “hello” video to bring back to the team in MOntreal? What do you guys want to tell them besides your name?

if time, try TB2

Appendix K: Workshops #3 Plan - Final Focus Group

The The School School
Final Focus Group
9:50 to 11:40 = 110 minutes

Rationale

This will be the final official visit with the The School School for the purpose of the Arcade Our Way Project. The main research purpose is to gather the responses to the game and project from the girls, and then ideas for further mini games based on assumptions about girls within the context of the Ghost Hotel Game. I want to learn more about their thoughts regarding the role of video games (media literacy) and collaboration. I will explain the future of the project to them, and remind them that they can follow the progress on the website.

Objectives

- learn what the grade 8 girls think of the final prototype
- what do they think the prototype is about/how does it relate to leadership?
- find out what they think about the project itself - what would they change? what did they like?

- do they think it matters that this was an all girls team? that the game prototype was designed by a girls without previous programming experience?
- what do you think of video games in general?
- why do you play games?
- do you think there are other types of reasons people could play games?
- what is the role of video games in society?
- what do you think games can do?

logistics

- connect computer to projector
- open game
- test Skype
- test Skype with slidesow at same time

Introduction

Greet the class and introduce Lisa Simpson - explain that Lisa Simpson built the prototype along with TankGirl, the artist we have worked with since the beginning

Action 1: Girls will fill in a short questionnaire - **10 min**
- the first thing we are going to do is to try out the game prototype
- what is a prototype?
- can I have a volunteer to come up and try it out while we watch?
- one girl will play the game on the big screen for everyone to see - 10min

Activities

Focus Group: Game Discussion

Action 2: we will discuss the game - their initial reactions, and how they think it addresses leadership **15 min**

1. what are your first thoughts?
2. is it similar to or different from what you imagined?
3. how does the game relate to leadership?

Project Tour

Action 3: Lisa Simpson shares 20 - 25 minutes with slideshow

1. **Research and synthesis (3 mins)**

i. Go back over previous ideas: what did we start off with and why? What inspired new ideas?
ii. Go back over initial intent & goals: make a game about leadership

iii. Establish the focus points

2. Game design (7 mins)
i. Game mechanics: what should be used to say what?
ii. Core gameplay loop
iii. Details about our game: mechanic based on leadership, trust and assumptions about girls.
Extra details on how the recruitment of ghosts works and relates to our concept.
iv. Talk about other mini-games idea we had and how they relate to the concept.

3. Evolution from the initial ideas (5 mins)

i. Iterative process
ii. Compare the new concept and the old, highlight similarities and evolution.
iii. Highlight why changes were made.

4. Implementation (7 mins)

i. Unity interface & code
ii. Moodboard & asset list
iii. Art assets & integration

Additional Mini-Games

Action 4: discuss their own mini-game ideas along these lines **15 min**

Focus Group: Project Discussion

Action 5: discuss their thoughts about the overall project, collaboration, and the role of video games in society **15 min**

2. What are your thoughts about the collaboration process?
3. do they think it matters that this was an all girls team?
4. Does it matter that the game prototype was designed by a girls without previous programming experience?
5. what did you enjoy about the project? what would you change about the project?
6. share some thoughts about video games in general
7. what is the role of video games in society?
8. what do you think games can do?
9. What would you do with the game now?
10. What effect do you think this video game will have?

Conclusion

let them know the future plan and remind them that the website exists and they can check on progress here **5 min**

Sample Questions listed in my SPF

1. ask for initial thoughts and responses to the game
2. is it similar to or different from what you imagined?
3. What are your thoughts about the collaboration process?
4. what did you enjoy about the project? what would you change about the project?
5. share some thoughts about video games in general
6. what effect do you think this video game will have?

high participation:

what motivated you to provide so many ideas in person and online?
how would you explain leadership?
can you share some thoughts about video games?
What role do video games play in the world if any?

low participation:
do you think you might have been motivated to participate more if the project were changed in some way?
how would you explain leadership?
can you share some thoughts about video games?
what role do video games play in the world if any?

Teacher Interview:

what are your thoughts about the project in general?
what are your thoughts in relation to media literacy?
what are your thoughts in relation to leadership ideas?
what are your thoughts about the collaborative aspect?

Focus group exit interview with apprentices and CEO:

what stands out about the project?

Appendix B: Questionnaire #2, April 1, 2015

Arcade Our Way

April 1st, 2015

Name:

Age:

Birthday:

How long have you been going to this school?

<u>Video games</u>

1. Do you play video games? Yes No

2. If yes, how often do you think you play per week? (circle)

15 min – 1 hr 2hrs – 3hrs 4hrs – 5hrs 5hrs – 6 hrs wayyy more

3. If you *do* play video games, why do you? If you don't play video games, why don't you?

Appendix C: Questionnaire #3, December 7, 2015

Arcade Our Way

@The The School School

December 7, 2015

Name:

Age:

Birthday:

How long have you been going to The School?

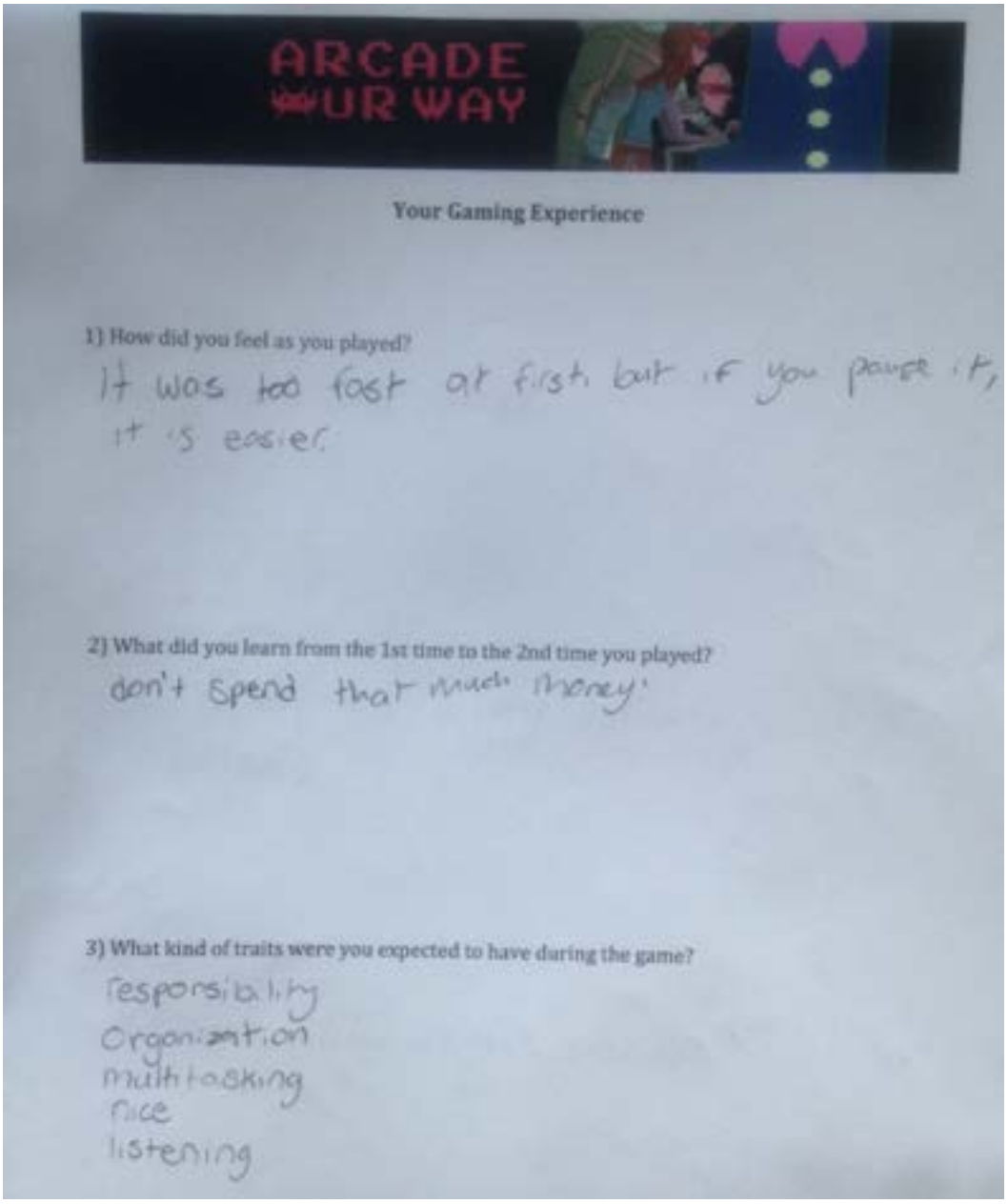
1. Do you play video games? Yes No

2. How often do you think you play per week? (circle)

15 min – 1 hrs 2hrs – 3hrs 4hrs – 5hrs 5hrs – 6 hrs wayyy more

3. If you *do* play video games, why do you? If you don't play video games, why don't you?

Appendix D: Three Question Reflection McDonalds Video game, November 14, 2014



Appendix E: Game Design Document example (Character Sheet), April 1, 2015

Character Bible

In a Game Design Document, the “Character Bible” is a detailed description of the main and supporting character’s personality and image. In the game TB2 there are 8 characters in total. As an example, here are three of the eight characters in TB2.

Player Character

The Player Character is a young reporter. You can choose their gender. He/She is adventurous and eager to take risks in order to succeed. This character is customizable and it is up to you to define him/her through the decisions you make while playing.

Adilah Koumama

Adilah is a peaceful and warm character. You can find her at the marketplace when you need information or clues for your investigation. She likes the fact that you're investigating on her country's struggles and helps you in exchange.

Barry Kingston

Barry is a another reporter who's very charming and charismatic, but who uses unethical methods to get his scoops. He shares a similar experience as you do and can be helpful, but you learn throughout the game that you shouldn't trust him.

Character Development Mission

Now it's your turn!

Let's design 3 characters for Ghost Hotel.

Based on the 3 characters above, what are your ideas for Ghost Hotel:

1 - A player character

Would it have a gender ? If yes, which one ?

Appendix F: The Fourteen Features of Nurturing Affinity Spaces Ranked According to Relative Strength.

Montréal Context	1	2	3	4	5
Features	**1 example of this feature took place in this context**	**2 different examples of this feature took place in this context**	**3 different examples of this feature took place in this context**	**4 different examples of this feature took place in this context**	**More than 5 different examples of this feature took place in this context**
1. Common endeavour is primary (versus race, class, gender, disability)					X
2. Affinity spaces are not segregated by age.				X	
3. Newbies, masters and everyone share a common space.					X
4. Everyone can if they wish produce and not just consume: **Some portals are strong generators.**				X	
5. Content is transformed by interaction: **internal grammar is transformed by external.**					X
6. The development of both specialist and general knowledge are encouraged and specialist knowledge is pooled.			X		
7. Both individual and distributed knowledge are encouraged.				X	
8. Tacit knowledge is [illegible]			X		

pages

1. Newbies, masters and everyone share a common space.
2. Affinity spaces are not segregated by age.
3. Content is transformed by interaction.
4. People get encouragement from an audience and feedback from peers, though everyone plays both roles at different times.

5. Common endeavour is primary (versus race, class, gender, disability).

Montréal Context	1	2	3	4	5
Features	**1 example of this feature took place in this context**	**2 different examples of this feature took place in this context**	**3 different examples of this feature took place in this context**	**4 different examples of this feature took place in this context**	**More than 5 different examples of this feature took place in this context**
9. Many different forms and routes to participation.			X		
10. Many different routes to status.				X	
11. Leadership is porous and leaders are resources.					X
12. Roles are reciprocal			X		
13. A view of learning that is individually proactive, but does not exclude help, is encouraged.				X	
14. People get encouragement from an audience and feedback from peers though everyone plays both roles at different times.				X	

6. Everyone can, if they wish, produce and not just consume.
7. The development of both specialist and broad, general knowledge are encouraged, and specialist knowledge is pooled.
8. Both individual and distributed knowledge are encouraged.
9. Tacit knowledge is used and honoured.
10. Many different routes to status.
11. Leadership is porous and leaders are resources.
12. A view of learning that is individually proactive, but does not exclude help, is encouraged.
13. Many different forms and routes to participation.
14. Roles are reciprocal.

Toronto Context	1	2	3	4	5
Features	**1 example of this feature took place in this context**	**2 different examples of this feature took place in this context**	**3 different examples of this feature took place in this context**	**4 different examples of this feature took place in this context**	**More than 5 different examples of this feature took place in this context**
1. Common endeavour is primary (versus race, class, gender, disability)	X				
2. Affinity spaces are not segregated by age.			X		
3. Newbies, masters and everyone share a common space.				X	
4. Everyone can if they wish produce and not just consume: **Some portals are strong generators.**		X			
5. Content is transformed by interaction: **internal grammar is transformed by external.**		X			
6. The development of both specialist and general knowledge are encouraged and specialist knowledge is pooled.			X		
7. Both individual and distributed knowledge are encouraged.		X			
8. Tacit knowledge is used and honoured.			X		

ges

Toronto Context	1	2	3	4	5
Features	1 example of this feature took place in this context	2 different examples of this feature took place in this context	3 different examples of this feature took place in this context	4 different examples of this feature took place in this context	More than 5 different examples of this feature took place in this context
9. Many different forms and routes to participation.	X				
10. Many different routes to status.		X			
11. Leadership is porous and leaders are resources.	X				
12. Roles are reciprocal	X				
13. A view of learning that is individually proactive, but does not exclude help, is encouraged.		X			
14. People get encouragement from an audience and feedback from peers though everyone plays both roles at different times.			X		

Appendix F1: The Fourteen Features of Nurturing Affinity Spaces Ranked According to Relative Strength Rubrics